

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF NORTH CAROLINA  
EASTERN DIVISION

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RODNEY D. PIERCE, et al,

Plaintiffs,

vs.

4:23-CV-193-D-RN

THE NORTH CAROLINA STATE BOARD OF ELECTIONS, et al,

Defendants.  
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FEBRUARY 4, 2025  
BENCH TRIAL - DAY 2  
BEFORE THE HONORABLE JAMES C. DEVER III  
UNITED STATES DISTRICT JUDGE

AMY M. CONDON, CRR, RPR, CSR  
Official Court Reporter  
United States District Court  
Raleigh, North Carolina  
Stenotype with computer-aided transcription

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## I N D E X

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PLAINTIFFS' EXHIBITS

<u>NUMBER</u>	<u>RECEIVED</u>
36, 37, 128, and 209	172
69, 70, 147, 221	50

## B. Esselstyn - Direct Examination

1 (Tuesday, February 4, 2025, commencing at 10:00 a.m.)

2 **P R O C E E D I N G S**

3 THE COURT: Good morning. You may continue the  
4 direct examination.

5 MR. FREEDMAN: Thank you, Your Honor.

6 Troy, can you pull back up slide 11 which is where I  
7 think we stopped yesterday.

8 DIRECT EXAMINATION

9 BY MR. FREEDMAN:

10 Q. Mr. Esselstyn, I think when we stopped yesterday, we were  
11 just talking about the demographics of the 2022 map in the  
12 northeast part of the state.

13 Could you just recap what -- any observations you have  
14 about the demographics of the 2022 map?

15 A. I think I had pointed out that of the eight  
16 majority-Black counties we discussed those are in four  
17 different districts but none of those four districts is  
18 majority Black by either the BVAP metric or the Black CVAP  
19 metric, and none of these six districts shown in this table  
20 have a BVAP or Black CVAP which is close to 50 percent.

21 MR. FREEDMAN: Can you pull up slide 12, please.

22 BY MR. FREEDMAN:

23 Q. Mr. Esselstyn, this is Figure 6 from your report. What  
24 is Figure 6?

25 A. This shows selected districts from the State Senate

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1 Districting Plan that was enacted in 2023.

2 Q. Is this the map that is currently in effect?

3 A. It is, yes. These would have been used for the most  
4 recent elections in 2024 as well.

5 Q. I want to pull up a side-by-side with the 2022 and 2023  
6 map.

7 MR. FREEDMAN: Troy, can you pull up slide 13,  
8 please.

9 BY MR. FREEDMAN:

10 Q. So this is Figures 5 and 6 from your report just  
11 side-by-side.

12 Mr. Esselstyn, can you tell us, what do you observe about  
13 the 2023 map relative to the 2022 map?

14 A. There are a number of things. One, is that the  
15 Black-Belt counties are more divided between Districts 1 and 2  
16 in the 2023 map than they are between Districts 1 and 3 in the  
17 2022 map. Also, District 2 has an unusually elongated  
18 non-compact shape stretching all the way from Warren County  
19 down to Carteret County. It's kind of snake-like.

20 Q. Thank you. Outside of the two districts you just  
21 mentioned, were any of the other districts adjusted between  
22 2022 and 2023?

23 A. Not in this map, no.

24 Q. Let's take a closer look at what happens in the  
25 demographics of these districts.

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1 MR. FREEDMAN: Troy, can you pull up slide 14,  
2 please.

3 BY MR. FREEDMAN:

4 Q. So, Mr. Esselstyn, this is the same two figures we just  
5 looked at, 5 and 6 with your Tables 1A and 2A from your  
6 rebuttal report. What does this slide show?

7 A. In this you can see that in the 2022 map, one of those  
8 northeastern districts, namely Senate District 3, had Black  
9 populations in the low 40 percent range. But if you look at  
10 the northeastern districts in the 2023 map, now labeled Senate  
11 District 1 and Senate District 2, their Black populations  
12 using either the BVAP metric or Black CVAP metric are all  
13 around 30 percent.

14 Q. Now, you mentioned earlier that in the 2023 map the  
15 Black-Belt counties are more split between the two districts.  
16 Can you just show or explain to the Court how you see that on  
17 the map?

18 A. Yes. So on the left-hand side you can see, for example,  
19 we've got Warren, Halifax, Northampton, Hertford, Bertie  
20 Counties, those five majority-Black counties are all in  
21 District 3, and Washington is in District 1. But if you look  
22 in the 2023 map, District 2 has Warren, Halifax, and  
23 Washington; but Northampton, Hertford and Bertie are in a  
24 different district.

25 MR. FREEDMAN: Troy, let's just go back to the prior

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1 slide, just quickly.

2 BY MR. FREEDMAN:

3 Q. You also made an observation about the compactness of the  
4 2023 map. Can you just explain for the Court what you meant  
5 by that?

6 A. Yes. And I think the following slide actually has  
7 metrics, but let's look at this because it shows the shape  
8 better.

9 If you look at the map on the right, let's say, District  
10 2, in many places it's basically just one countywide, you have  
11 Warren, then Halifax, then Martin, Washington. It's this very  
12 long, snaky district that would I think take hours to drive  
13 from one end to the other.

14 Q. Just to be clear, you're talking about the 2023 map up  
15 here?

16 A. Yes. Thank you. Senate District 2 in the 2023 map. And  
17 I believe if we look at the slide that has the tables on it --

18 Q. Why don't we go forward to that, yes.

19 A. Perfect. You can see that the Polsby Popper compactness  
20 score for Senate District 2 in 2023, the far right, far most  
21 right column there, yep, 0.10, I'm quite certain that that is  
22 actually the lowest compactness score for any Senate District  
23 in the 2023 enacted plan.

24 Q. And how did that compare to the 2022 map?

25 A. You can see that -- well, either of the analogous

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1 districts, Senate District 1 or Senate District 3, their  
2 Polsby Popper scores were about the same .17 and .18, so  
3 significantly lower.

4 Q. And lower, lower Polsby Popper signifies what?

5 A. The closer Polsby Popper number is to one the more  
6 compacted the district is considered to be. I should point  
7 out that the Reock score is significantly lower as well. So  
8 it's .23 in the 2023 map as opposed to the analogous districts  
9 which would be 0.40 and .30.

10 Q. And the higher the Reock and the Polsby Popper score the  
11 more compact the district is?

12 A. That's correct.

13 Q. Okay. Why don't we -- Why don't we turn to your  
14 Demonstration Districts. We'll start with Demonstration  
15 District A.

16 MR. FREEDMAN: Troy, could you please pull up slide  
17 15 please.

18 BY MR. FREEDMAN:

19 Q. This is Figure 7 from your report. What is shown here?

20 A. This shows the first Demonstration District that I  
21 present and that is composed of eight entire counties or eight  
22 counties in their entirety. Those counties are Vance, Warren,  
23 Halifax, Northampton, Hertford, Bertie, Martin, and  
24 Washington. And seven of those eight are majority-Black  
25 counties.



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1 Q. Just so -- I think this was clear from what you just  
2 said, but does Demonstration District A split any counties?

3 A. It does not.

4 Q. Okay. And you commented on this, but just the  
5 demographics of these counties. Are these majority Black or  
6 are they all majority Black?

7 A. Seven of the eight are majority Black. Martin County is  
8 the one that is not majority-Black total population, but it  
9 does have a significant Black population percentage.

10 Q. How significant?

11 A. It's referenced in my report. Let me take a moment to  
12 look that up.

13 Q. I may have something that would help.

14 A. I just -- just about there. This is on page, page 5 of  
15 my report. Martin is 42.1 percent.

16 Q. And you mentioned that seven of the eight counties are  
17 among North Carolina's majority-Black counties, right?

18 A. Yes. Considering total population, yes.

19 Q. I think we have a demonstrative that shows that.

20 MR. FREEDMAN: Troy, can you pull up slide 16,  
21 please.

22 BY MR. FREEDMAN:

23 Q. This is figures -- Figure 7 that we were just looking at  
24 on the left which is your Demonstration District A and Figure  
25 1 from your report. Can you remind the Court what Figure 1

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1 is?

2 A. Yes. Figure 1, which is the one on the right, shows  
3 eight counties shaded in green and all of those counties have  
4 a majority-Black total population.

5 Q. And so what does this slide show?

6 A. This slide, when you look at both maps together you can  
7 see seven of those eight majority-Black counties are within  
8 Demonstration District A.

9 Q. Let's take a look at the demographics of Demonstration  
10 District A.

11 MR. FREEDMAN: Troy, can you pull up slide 17,  
12 please.

13 BY MR. FREEDMAN:

14 Q. So this is Figure -- I think it's mislabeled, but it's  
15 Figure 7 from your report and Table 3A from your rebuttal  
16 report. Does that look right to you?

17 A. Let's check. It is -- that is indeed Figure 7 from my  
18 first report and, yes, Table 3A from the rebuttal report.

19 Q. Thank you. Can you tell us what the Black Voting Age  
20 Population is for Demonstration District A?

21 A. 51.47 percent.

22 Q. Can you tell us what the Black Citizen Voting Age  
23 Population is for Demonstration District A?

24 A. 52.71 percent.

25 Q. I know we covered this yesterday, but can you just remind

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1 the Court why Black Citizen Voting Age Population would be  
2 higher than Black Voting Age Population?

3 A. This is true in many situations in North Carolina. I  
4 think it's actually more common to have a higher Black CVAP  
5 than a BVAP. And essentially it has to do with the fact that  
6 the Black community in North Carolina, many of them have been  
7 in the United States for generations, they have high  
8 citizenship rates, and when you compare that to other racial  
9 groups and ethnic groups in the general population, those have  
10 lower citizenship rates.

11 So the BVAP -- sorry. The Black CVAP is calculated with  
12 the numerator made up of Black citizens and then in the -- in  
13 the denominator, you're taking out the noncitizens and there  
14 are more noncitizens in other racial groups than in the Black  
15 community, so the fraction or the percentage tends to be  
16 higher.

17 Q. So it's not surprising to you that the Black Citizen  
18 Voting Age Population is higher than the Black Voting Age  
19 Population in Demonstration District A?

20 A. Not at all.

21 Q. So for Demonstration District A, did you need to redraw  
22 adjacent districts?

23 A. Yes.

24 Q. Why did you have to redraw adjacent districts?

25 A. So the counties that are in Demonstration District A are

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1 contained in multiple districts within the enacted map, either  
2 the 2022 or 2023 enacted map. So I had to adjust the adjacent  
3 districts.

4 Q. Let's look at the other redrawn districts around  
5 Demonstration District A.

6 MR. FREEDMAN: Troy, can you pull up slide 18  
7 please.

8 BY MR. FREEDMAN:

9 Q. This is Figure 9 from your report, and we've also  
10 included Table 4A from your rebuttal report. What does this  
11 slide show? We can start with the top.

12 A. Yeah. The map shows Demonstration District A as well as  
13 four other districts which I've labeled A2, A4, A9, and A11.  
14 Those numbers correspond with the analogous districts in the  
15 enacted map.

16 Q. Do you have any observations about the surrounding  
17 districts?

18 A. Well, essentially, the general configuration is dictated  
19 by the Stephenson groupings. So for creating these districts,  
20 I relied on Stephenson county groupings that were provided by  
21 Dr. Mattingly, and then I just endeavored to make these  
22 reasonably configured districts that conformed to traditional  
23 redistricting criteria within the confines of those groupings  
24 that were provided.

25 Q. In your opinion, is Demonstration District A reasonably

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1 configured?

2 A. Yes.

3 Q. And in your opinion, are the four redrawn districts, A2,  
4 A4, A9, and A11, reasonably configured?

5 A. Yes.

6 Q. Now, are you aware that these districts were drawn using  
7 Stephenson clusters where both Demonstration District A and  
8 Pitt-Edgecombe were frozen?

9 A. Yes, I am.

10 Q. Did you review Dr. Mattingly's rebuttal report and see  
11 where he created Stephenson clusters keeping Demonstration  
12 District A but not freezing Pitt-Edgecombe?

13 A. I did, yes.

14 MR. FREEDMAN: Let's pull that up. Troy, let's pull  
15 up 114 at Figure 1.

16 BY MR. FREEDMAN:

17 Q. Mr. Esselstyn, what are we looking at?

18 A. This is a figure from Dr. Mattingly's rebuttal report  
19 showing what you just described; in other words, the county  
20 groupings that would result if Demonstration District A were  
21 frozen but the Pitt-Edgecombe District was not frozen.

22 Q. What can you tell us about the districts surrounding  
23 Demonstration District A if Pitt-Edgecombe hadn't been frozen?

24 A. Well, the groupings around the state, almost all of them  
25 would be the same as they are in the enacted plan. So the

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1 ones that change are the green one to the south of  
2 Demonstration District A, what Dr. Mattingly yesterday called  
3 the goldenrod colored one, I would say orange, maybe  
4 orange-colored one underneath Demonstration District A and the  
5 rust-colored one in the eastern most part of the state. Those  
6 are the only ones that would be different from the enacted  
7 plan. And because the green one and the orange one are  
8 single-district clusters those districts are already decided.  
9 There's no discretion for the mapmaker in drawing districts  
10 there.

11 The rust-colored one would include two districts, so a  
12 mapmaker would have to draw one boundary in that cluster to  
13 divide that into two districts.

14 Q. In your opinion, could you draw reasonably configured  
15 districts using the Stephenson clusters?

16 A. Yes, absolutely.

17 Q. Let's move on to Demonstration District C.

18 MR. FREEDMAN: Troy, can you pull up slide 19  
19 please.

20 BY MR. FREEDMAN:

21 Q. This is Figure 12 from your report. What does this slide  
22 show?

23 A. So this slide shows Demonstration District C. This is  
24 another Demonstration District that I offer. And this is  
25 composed of a number of counties in their entirety. Those

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1 being Gates, Chowan, Washington, Martin, Bertie, Hertford,  
2 Northampton, Halifax, and Warren, as well as a portion of  
3 Vance County.

4 Q. Why did you prepare Demonstration District C?

5 A. This enabled me to show that there are multiple ways of  
6 drawing a Demonstration District; that there are multiple  
7 reasonable configurations that would provide a majority-Black  
8 population while satisfying the other traditional  
9 redistricting criteria.

10 Q. Can you compare the geography of Demonstration District C  
11 to Demonstration District A?

12 A. Yes. As we mentioned before, Demonstration District A is  
13 composed of entire counties, and I won't repeat those unless  
14 you'd like me to. But the ones that are different,  
15 Demonstration District D -- sorry. Demonstration District C  
16 also includes Chowan and Gates, which Demonstration District A  
17 did not, and instead of including all of Vance County it  
18 includes, as I mentioned earlier, a portion of Vance County.  
19 I believe those are the main differences.

20 Q. Great. And can you comment on the demographics of the  
21 counties in Demonstration District C?

22 A. I can. So all of them are either majority Black or have  
23 a significant percentage of the population that is Black.

24 Q. Now, are you familiar with Dr. Trende's statement in his  
25 report that Demonstration District C separates the Black

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1 population of Vance County from the White population?

2 A. I am, yes.

3 Q. Can you respond to that?

4 A. Yes. Frankly, I found that a little bit baffling. You  
5 can see in this figure there are precincts in Vance County  
6 that are outside the district that I drew that have 40 to  
7 49 percent Black population and those were not included in the  
8 district. So I don't know how one could say that somehow the  
9 Black population is only included in the part of Vance County  
10 that is in Demonstration District C.

11 Q. Do you recall what percentage of the Vance County Black  
12 population is outside of Demonstration District C?

13 A. I believe it's 37 percent.

14 Q. Okay. Let's take a look at the demographics of this.

15 MR. FREEDMAN: Troy, can you pull up slide 20,  
16 please.

17 BY MR. FREEDMAN:

18 Q. So we added to Figure 12 that we were looking at in the  
19 last slide Table 6A from your rebuttal report. Do you see  
20 that?

21 A. I do.

22 Q. What does this slide show?

23 A. The table indicates here that the Black Voting Age  
24 Population for Demonstration District C is 50.21 percent and  
25 the Black CVAP percentage for that district is 51.24 percent.



## B. Esselstyn - Direct Examination

1 Q. In your opinion, is Demonstration District C reasonably  
2 configured?

3 A. Yes.

4 Q. For Demonstration District C, did you need to redraw  
5 adjacent districts?

6 A. Yes.

7 Q. Let's look at the redrawn districts around Demonstration  
8 District C.

9 MR. FREEDMAN: Troy, can you pull up slide 21,  
10 please.

11 BY MR. FREEDMAN:

12 Q. So this is figure 14 from your report in Table 7A. What  
13 does this slide show?

14 A. So the map part shows, in addition to Demonstration  
15 District C, the adjacent districts that I needed to change.  
16 There are just three of those labeled C2, C4, and C11. Again,  
17 those were drawn within the confines of county groupings that  
18 Dr. Mattingly provided, groupings that he generated by  
19 freezing Demonstration District C. And so I worked within  
20 those county groupings to create districts that are reasonably  
21 configured and comport with traditional redistricting  
22 criteria.

23 Q. Were the -- for the groupings that Dr. Mattingly  
24 provided, do you know whether Pitt-Edgecombe was frozen in  
25 this scenario?

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1 A. He did not freeze the Pitt-Edgecombe district or cluster  
2 in order to generate these. These -- the only part that was  
3 frozen was Demonstration District C.

4 Q. Okay. In your opinion, are the surrounding -- the  
5 districts that -- redrawn districts that surround  
6 Demonstration District C, C2, C4, and C11 reasonably  
7 configured?

8 A. Yes.

9 Q. Can you comment on the redrawn district surrounding  
10 Demonstration District C relative to recent North Carolina  
11 maps of this part of the state?

12 A. As we discussed earlier, the -- the maps currently in  
13 effect in the northeastern part of the state have a district  
14 with unusually exceptionally low compactness. These districts  
15 are, I think, more reasonably shaped and the compactness  
16 scores reflect that.

17 Q. Do you have any other observations about the surrounding  
18 districts?

19 A. Well, as we said, I think that would be -- what I was  
20 about to say would have been representative. So --

21 THE COURT: He'll ask you another question. You  
22 don't have to be repetitive.

23 BY MR. FREEDMAN:

24 Q. I'm prepared to just move on. Why don't we move on to  
25 Demonstration District D.

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1 A. Okay.

2 MR. FREEDMAN: Troy, can you pull up slide 22  
3 please.

4 BY MR. FREEDMAN:

5 Q. Mr. Esselstyn, this is Figure 15 from your report. What  
6 does this slide show?

7 A. This shows Demonstration District D, and this is composed  
8 mostly of counties in their entirety; namely Warren, Halifax,  
9 Northampton, Hertford, Bertie, Martin, Washington, Tyrrell,  
10 and Gates, as well as a portion of Pasquotank County.

11 Q. Now, you already have two other Demonstration Districts  
12 that we've gone over. Why did you prepare Demonstration  
13 District D?

14 A. So, again, this shows another possible way of providing a  
15 solution to the problem, if you will. And one thing that's  
16 interesting about this one is that Demonstration District D  
17 fits entirely within the extent of current enacted districts  
18 senate Districts 1 and 2, so by confining this district to  
19 that area only one other district would need to be modified.

20 Q. Can you just explain what you mean by that?

21 A. Sure. The Stephenson groupings in the northeastern part  
22 of the state, we looked at a slide yesterday that showed there  
23 are two possible configurations to group the counties in the  
24 eastern -- northeastern part of the state. Both of those  
25 include the same sets of counties, but they are grouped in

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1 different ways. Here, Demonstration District D because it  
2 fits entirely within those counties and the population is such  
3 that another district can be drawn that is also entirely  
4 within those counties, so it's essentially the Demonstration  
5 District and the one that accompany it are in just two  
6 Stephenson county groups and do not require any changes  
7 outside of those two.

8 Q. Just so the record is clear, outside of Demonstration  
9 District D and the other district that is in that Stephenson  
10 grouping, did you have to redraw any other districts in the  
11 state for Demonstration District D?

12 A. I did not.

13 Q. Okay. Can you comment on the demographics of the  
14 counties in your Demonstration District D?

15 A. I can. So Washington, Bertie, Hertford, Northampton,  
16 Halifax, and Warren all have majority-Black total populations,  
17 and the other counties have significant percentages of Black  
18 population.

19 Q. Let's look at the demographics.

20 MR. FREEDMAN: Troy, can you please pull up slide  
21 23.

22 BY MR. FREEDMAN:

23 Q. And this is Figure 15 that we were looking at in the last  
24 slide in Table 8A from your rebuttal report. What does this  
25 slide show?

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1 A. Well, the table provides demographic information as well  
2 as some other information, and it shows that while the BVAP  
3 for Demonstration District D is slightly under 50 percent, the  
4 Black CVAP in 2022, Black CVAP is 50.14 percent.

5 Q. Now, you're aware that Dr. Collingwood calculated a  
6 margin of error at the 90 percent confidence interval that  
7 includes Black Citizen Voting Age Population for this  
8 Demonstration District below 50 percent. Are you familiar  
9 with that?

10 A. I'm aware that he calculated a margin of error for this  
11 district and that dataset, yes.

12 Q. Why are you still comfortable offering Demonstration  
13 District D as a majority-Black district here today?

14 A. Well, the value there represents the -- essentially the  
15 sum of the best estimates for the geographic units that are  
16 available in the district. The CVAP special tabulation from  
17 the American Community Survey is considered the gold standard  
18 best data out there.

19 It is customary for experts like myself doing Gingles I  
20 analysis in Section 2 cases to use this statistic. And as I  
21 mentioned yesterday, it's conservative. I mean, the margin of  
22 error could actually yield, if one were to apply the margin of  
23 error, that could yield a higher percentage or a lower  
24 percentage, but it's a conservative statistic in that it  
25 doesn't include all of the categories of Black citizens or

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1 Black individuals that would be included in BVAP.

2 Q. Now, it was late in the day when you explained that  
3 concept. Could you just go over again what Black Citizen  
4 Voting Age Population does not include that Black Voting Age  
5 Population does?

6 A. Yes. So Black Voting Age Population is often called any  
7 part Black or Black alone or in combination. So any  
8 individual that identifies at least partially as Black would  
9 be considered Black under the BVAP.

10 However, Black CVAP uses a narrower group of categories.  
11 It does not include people who identify as Black, as well as  
12 Hispanic; and it includes people who identify as Black alone,  
13 as well as people who identify as both Black and White or both  
14 Black and Native-American or American Indian. But other mixed  
15 race identifications, if someone, for example, were to  
16 identify as both Black and Asian, that person would be counted  
17 in BVAP but not in Black CVAP.

18 Q. So just the 50.14 percent number reflected in Table 8A,  
19 what -- what populations is that potentially not reflecting?

20 A. People who identify as Black and Hispanic. People who  
21 identify as Black and Asian. People who identify as Black and  
22 Native Hawaiian Pacific Islander. People who identify as  
23 Black and other. There are folks -- yeah. The other category  
24 includes things -- people who might consider themselves, for  
25 example, Middle Eastern, they don't identify as White, but

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1 Middle Eastern category was not available in the 2020 Census.

2 Q. And how does the exclusion of those different populations  
3 from the 50.14 percent Black Citizen Voting Age Population,  
4 what leads you to think that the 50.14 percent figure is  
5 conservative?

6 A. Well, because in many considerations for Section 2 and  
7 for Gingles I people are looking at any part Black, and the  
8 Black CVAP categorizations are providing -- are identifying  
9 people in such a way that they're not catching everybody that  
10 is any part Black.

11 Q. And all of the people that are excluded from the Black  
12 Citizen Voting Age Population that you just described, those  
13 would be included in the Decennial Census numbers, right?

14 A. Correct.

15 Q. And those Black citizens are in the denominator but not  
16 the numerator, correct?

17 A. That's correct.

18 Q. So can you just explain the significance of that?

19 A. Yes. So you have a situation where the numerator, the  
20 top of the fraction is smaller than it otherwise would be had  
21 they used the any part Black classification, but the  
22 denominator still saying it would be comparably large. So  
23 when the numerator is smaller than it otherwise would be but  
24 the denominator stays the same, the resulting fraction or the  
25 resulting percentage is lower.

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1 Q. Because the denominator includes all citizens, right?

2 A. All adult citizens, yes.

3 Q. Are you familiar with Dr. Trende's statement in his  
4 report that you split Pasquotank County on a racial basis?

5 A. I am.

6 Q. Can you respond to that?

7 A. Yeah. Again, I do not agree with that characterization.  
8 In my effort to find a reasonable way to divide the county, I  
9 essentially took the northern part of the county and then as  
10 much of the precincts in Elizabeth City as I could, trying to  
11 keep Elizabeth City, Elizabeth City's population, that  
12 community intact, to the extent that I could.

13 So if you look, the parts of Pasquotank County that are  
14 included, as I said, are the northern precincts and the  
15 majority, the vast majority of the precincts that include  
16 Elizabeth City's population.

17 Q. For Demonstration District D, did you need to redraw any  
18 adjacent districts?

19 A. I did. Just one.

20 MR. FREEDMAN: Troy, let's pull up slide 24.

21 BY MR. FREEDMAN:

22 Q. This is Figure 16 from your report. What does this show?

23 A. This shows Demonstration District D which we've been  
24 looking at as well as what I'm calling District D2 and that  
25 fills in the remainder of that extent that we discussed



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1 earlier, the counties that are occupied by enacted Districts 1  
2 and 2.

3 Q. In your opinion, is Demonstration District D reasonably  
4 configured?

5 A. Both of these districts are reasonably configured in my  
6 opinion, yes.

7 Q. I love it when you save me a question.

8 Can you comment on the surrounding districts?

9 A. The surrounding districts other than these two are all  
10 identical to what they would be in the enacted plan.

11 Q. Thank you. I'm now going to turn to your analysis of  
12 comparative characteristics. The easiest way to do this --

13 MR. FREEDMAN: Troy, if you can pull up Joint  
14 Exhibit 4.

15 BY MR. FREEDMAN:

16 Q. We spent some time with this document yesterday when we  
17 were talking about redistricting criteria. Do you recall  
18 that?

19 A. I do.

20 Q. I just want to walk through some of the criteria starting  
21 with the top one equal population.

22 Can you comment on how the Demonstration Districts you  
23 are presenting address equal population?

24 A. Yes. They all comply with equal population in the same  
25 manner as the enacted districts.

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1 Q. Can you comment on how the Demonstration Districts you're  
2 presenting address contiguity?

3 A. They all are contiguous in the same way that the enacted  
4 Senate districts are.

5 Q. Can you comment on how the Demonstrative Districts you're  
6 presenting address respect for political subdivisions?

7 A. Yes. I would say the Demonstration Districts are all  
8 comparable and that I made efforts to preserve those political  
9 subdivisions whole to the extent that I could.

10 Q. Can you comment on how the Demonstration Districts you're  
11 presenting address county groupings and traversals?

12 A. Yes. So they all comply with the Stephenson groupings  
13 provided by Dr. Mattingly, and when I did the -- as was  
14 discussed yesterday, the Stephenson county groupings often  
15 dictate whether a county needs to be split. And when I did  
16 split a county, I did so in a way that would minimize the  
17 number of lines traversing that county.

18 Q. When you were drawing districts in the rest of the map,  
19 did you have discretion to try to reduce the number of county  
20 splits?

21 A. There is a minimum number that is dictated by the  
22 Stephenson groupings, and I kept my county splits to the  
23 absolute minimum that I could within the groupings that were  
24 provided.

25 Q. Can you comment on how the Demonstrative Districts you're

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1 presenting address respect for compactness?

2 A. Yes. All of the Demonstration Districts have compactness  
3 scores that are either equal to or above the compactness  
4 scores of the analogous enacted districts.

5 MR. FREEDMAN: Troy, can we go back to the  
6 presentation and look at slide 25.

7 BY MR. FREEDMAN

8 Q. This is Table 9 from your report. What does this show?

9 A. This shows -- we talked a little bit before about the  
10 Reock compactness measure and the Polsby Popper compactness  
11 measure, and this shows for both of these measures the  
12 Demonstration District scores are all either equal to or  
13 higher than the scores for the analogous enacted districts.

14 Q. And a higher score signifies more compact or less  
15 compact?

16 A. More compact.

17 Q. Mr. Esselstyn, can you comment on whether the  
18 Demonstration Districts you present adhere to redistricting  
19 criteria, such as population deviation, contiguity,  
20 compactness, and respect for political subdivisions?

21 A. Yes. I believe they comply with all of those.

22 MR. FREEDMAN: Troy, let's go to slide 26.

23 BY MR. FREEDMAN

24 Q. Mr. Esselstyn, I'm now going to turn to your rebuttal  
25 report and your response to Dr. Trende. Let's start big

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1 picture: Do you have an overall reaction to his report?

2 A. Yes.

3 Q. What was that?

4 A. I was surprised at the extent of inaccurate information  
5 that was included in the report as well as logic errors and  
6 information provided that I felt was misleading.

7 Q. We've got a couple bullets here. I'm just going to walk  
8 through them, but we're going to be switching back and forth  
9 with Dr. Trende's report.

10 Let's start with issues that you saw concerning  
11 Dr. Trende's description and use of census data. Troy, can  
12 you pull up Legislative Defendants' Exhibit 60, which is  
13 Dr. Trende's report at page 18. And let's highlight the  
14 paragraph third, which says: Third differential privacy  
15 complicates this endeavor beginning with the 2020 Census data  
16 at the block level were randomly altered to mask individuals'  
17 identities, including racial data and there's a website.

18 This means that the weights used to allocate the Black  
19 CVAP may be inaccurate. We have no way of knowing.

20 Can you comment on that observation?

21 A. Yes. The second sentence highlighted there, especially  
22 the first part of it beginning with the 2020 Census, that's  
23 simply wrong.

24 So the census is required to provide its results in a way  
25 that don't violate individuals' privacy or households'

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1 privacy. So going back decades in order to prevent people  
2 from looking at the data and finding out information about  
3 individuals or individual households, they've done things that  
4 were called disclosure avoidance. One of the practices was  
5 called noise injection. So this is going back to at least the  
6 1990 cycle, so three previous cycles. And researchers have  
7 been aware that this was happening and that they did not know  
8 the actual data, the micro data that the census department  
9 keeps confidential, but they still find -- have found the  
10 results to be reliable for this kind of purpose.

11 Q. Does differential privacy -- just looking at the sentence  
12 after the website. Does differential privacy mean that the  
13 weights used to allocate the Black CVAP may be inaccurate?

14 A. The -- it's complicated. So I suppose it depends on what  
15 you're using -- what you mean by "inaccurate" in this sense.

16 But as I mentioned for decades there have been techniques  
17 that the Census Bureau used to make minor alterations to the  
18 data, sometimes called jittering the data, in such a way that  
19 unscrupulous people who are trying to mine the data for  
20 personally identifiable information would not be able to do  
21 so.

22 But this is, as I understand it, this practice has not  
23 undermined the reliability or the accuracy of the data for  
24 this type of purpose.

25 Q. The Census Bureau has been doing this for decades?

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1 A. Correct.

2 Q. Okay. Now, turning to Dr. Trende's use of census data.

3 MR. FREEDMAN: Troy, can you pull up the same  
4 document at page 17.

5 BY MR. FREEDMAN:

6 Q. And we'll highlight the language starting: In our  
7 example here we calculate for each block the percentage of the  
8 block groups VAP contained in the block and the percentage of  
9 the block groups BVAP contained in the block. And it goes on  
10 from there.

11 A. Yes.

12 Q. Can you comment on this analysis?

13 A. I can. So this gets at something which I -- I'm not  
14 100 percent sure that we discussed. We talked about some of  
15 the differences between the Decennial Census data and the  
16 American Community Survey data and one of the differences is  
17 is that the American Community Survey data is not available at  
18 the census block level. It's available -- the five-year  
19 survey data are made available to the block, block group  
20 level.

21 So in order to calculate Black Citizen Voting Age  
22 Population for precincts since the ACS does not provide data  
23 at the precinct level, one has to disaggregate data to the  
24 block level and then use those blocks which combine to form  
25 precincts.

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1       And Dr. Trende in this section of this report is trying  
2 to explain how that disaggregation process works and how the  
3 values for Black Citizen Voting Age Population are assigned to  
4 individual blocks. And in this highlighted text, he makes the  
5 mistake of using -- as we were discussing earlier today, the  
6 Decennial Census uses the any part Black categorization where  
7 the American Community Survey uses a different categorization.

8       And in this area here, he makes the mistake of applying  
9 the Decennial Census categorization of Black identifying the  
10 number of Black adults when he should have used the narrower  
11 categorization.

12 Q.    Can you just break that down for us. What is Dr. Trende  
13 doing that is incorrect with regard to the categorizations  
14 that he's presenting here?

15 A.    Sure. I'll provide sort of a simplified example that  
16 might help. If you have a block group that is divided up into  
17 blocks and we are provided with a value for the Black Citizen  
18 Voting Age Population in that block group, let's say, one  
19 block you want to find out for a specific block in that block  
20 group what the value would be, and if that block contained  
21 10 percent of the Black adults in the block group, you would  
22 assign 10 percent of the Black Citizen Voting Age total to  
23 that individual block.

24       But in identifying what percentage of Black adults would  
25 be in each of these blocks, Dr. Trende uses the any part Black

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1 number from the Decennial Census when he should have used the  
2 three -- the Black alone, Black or African American and White  
3 and Black or African American and American-Indian or  
4 Native-American.

5 Q. And what's the bottom line?

6 A. The bottom line is three of the numbers in this paragraph  
7 are wrong, and I mentioned that in my rebuttal report and  
8 point out the values that are incorrect as a result.

9 Q. Can you just walk us through how his categorization  
10 errors impact -- it's not just -- is it just this paragraph?

11 A. No, no. This -- he provides this as an example of the  
12 process that would have been applied and that he would have  
13 applied in his code. But this -- this text in here is just  
14 meant to -- it's supposed to explain the situation but, in  
15 fact, what it shows is that the process that he used is wrong  
16 and that all of the disaggregation analysis in his report is  
17 therefore questionable.

18 Q. Just so it's clear. How do these categorization errors  
19 impact his calculation of Citizen Voting Age Population  
20 throughout his report?

21 A. They have the result that his numbers are incorrect.

22 Q. Did you have any observations concerning Dr. Trende's  
23 calculations of Citizen Voting Age Population margins of  
24 error?

25 A. Yes. So I think this might have been page 23 in his



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1 report. He provides some other numbers that are wrong.

2 He's --

3 Q. Why don't we pull that up so you're not --

4 MR. FREEDMAN: Troy, can you pull up pages 23 and  
5 let's look at 24 as well. One more. Can you put it  
6 side-by-side with 24.

7 THE WITNESS: Okay. So on page 23 at the bottom  
8 where he says the total estimated CVAP for the block groups in  
9 District B1 is 169,225, the total estimated CVAP for the block  
10 groups in District B1 is 83,992. These numbers are critical  
11 to his analysis of margin of error and they are both wrong.  
12 And in my -- I'm looking at page 18 in my rebuttal report,  
13 paragraph 35, the correct values should be lower. It should  
14 be 167,315 for the first and the second should be 83,542.

15 And then later in that paragraph near the end  
16 there's a -- I guess the second to last sentence in that  
17 paragraph on the next page it says, "Additionally, the overall  
18 Black CVAP percentage of the block groups in the district is  
19 49.6 percent." That number is wrong. That should be  
20 49.93 percent. I'll stop there for now.

21 BY MR. FREEDMAN:

22 Q. Okay. Did you have observations about Dr. Trende's  
23 calculations of margins of error elsewhere in his report?

24 A. Indeed. On page 24, he looks at Demonstration District D  
25 and, again, gets numbers wrong. So he didn't provide the

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1 total CVAP numbers that he did in the previous paragraph so I  
2 couldn't -- couldn't look at those, couldn't examine those,  
3 but he reported those percentages again and he reports a CVAP  
4 of 50.2 percent.

5 So this is toward the bottom of the paragraph, yes. For  
6 2020, the block groups do have an estimated BCVP  
7 50.2 percent. That actually should be 50.55 percent, so he  
8 gets that low by quite a bit.

9 And then for the 2022 data, he says 49.5 percent. In  
10 fact, that should be 49.81 percent.

11 Again, a comment on this. I was curious about where  
12 these numbers, the mistakes might have come from and my  
13 understanding is that Dr. Collingwood has identified that  
14 Dr. Trende used -- included block groups in Demonstration  
15 District B and Demonstration District D that should not have  
16 been included in those districts.

17 MS. RIGGINS: Your Honor, I need to object to Mr.  
18 Esselstyn's answer there. He referenced Demonstration  
19 District E and that was --

20 THE WITNESS: If I did, I misspoke.

21 MS. RIGGINS: I just wanted to be clear. I thought  
22 he said Demonstration District E, and I wanted to make sure we  
23 were clear on that.

24 THE WITNESS: I said B. B like Blake, B like boy  
25 and D like dog.

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1 MS. RIGGINS: I apologize.

2 THE WITNESS: That was my intent. It's possible I  
3 misspoke, but I think I was choosing my letters carefully.

4 BY MR. FREEDMAN:

5 Q. We'll hear from Dr. Collingwood this afternoon.

6 Did you have on your own any observations about  
7 Dr. Trende's selections of block groups to analyze?

8 A. I had suspicions. I did not run his code. I should be  
9 more clear. I did not run Dr. Trende's code. I was curious  
10 how he would have come up with the CVAP numbers in -- on  
11 page 23 that are highlighted on page 23 that were higher than  
12 they should have been. And so I knew that something was  
13 incorrect.

14 Q. And to be clear, the numbers that he's presenting are not  
15 the numbers for the actual Demonstration Districts, right?

16 A. No. This is a part of his analysis, critical part of his  
17 analysis, but it's not the districts themselves. It's the  
18 block groups, entire block groups that he is considered to  
19 be -- he's considering to be inside the Demonstration  
20 Districts. As I mentioned, the block groups are divided in --  
21 in Pasquotank County.

22 Q. What's the upshot of Dr. Trende's errors in how he  
23 calculates Citizen Voting Age Population?

24 A. They call into question the accuracy of his margin of  
25 error statistics as well as the disaggregation process that he

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1 used.

2 Q. I want to turn now to your observations concerning his  
3 discussion in the Stephenson requirements.

4 MR. FREEDMAN: Troy, can we turn in Dr. Trende's  
5 report Legislative Defendants' Exhibit 60 to page 25. I want  
6 to highlight the language starting "because every county in  
7 the district has at least 2,364 Black residents of voting age  
8 all counties in the map are required to achieve a majority  
9 district," and then the next sentence.

10 I want to take this sentence by sentence.

11 Troy, could you highlight the next sentence as well.

12 BY MR. FREEDMAN:

13 Q. Can you comment on Dr. Trende's observations that all  
14 counties in the map, referring to Demonstration District A,  
15 are required to achieve a majority-Black district?

16 A. Yes. That statement is fallacious. I was puzzled by how  
17 someone would make that assertion. It does not follow  
18 logically from what he said in the previous sentences, the  
19 numbers he cites there. It is not a logical conclusion.

20 In fact, in my rebuttal report, I provide examples of  
21 alternative configurations. For example, including Chowan  
22 County or Gates County instead of Washington County that also  
23 would have been majority Black been composed of entire  
24 counties. So the statement that all counties in the map are  
25 required to achieve a majority-Black district are demonstrably

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1 false.

2 Q. The eight counties that you selected for Demonstration  
3 District A were not -- the inclusion of all eight of them was  
4 not necessary to achieve a majority-Black county?

5 A. That's correct.

6 Q. Okay. Going on to the next sentence, he writes: If  
7 counties were to be split, which I understand to violate the  
8 Stephenson rule, let's pause there. Do you have any reaction  
9 to that?

10 A. Yes. Having worked -- doing redistricting consulting  
11 work in North Carolina I've often come across this  
12 misconception that the Stephenson requirements somehow forbid  
13 the splitting of counties or require an absolute minimization  
14 of the splitting of counties. But as we discussed, the  
15 Stephenson ruling indicated that the Voting Rights Act must be  
16 satisfied; that the Voting Rights Act districts must be drawn  
17 first, and then the groupings can be determined.

18 And further, we know that the Stephenson algorithm does  
19 not necessarily provide an absolute minimum number of county  
20 splits. So -- and it is actually required -- counties need to  
21 be split. Even in the enacted map there are counties split  
22 and that's not considered a violation of the Stephenson rule.

23 Q. Now going on to the rest of that sentence, he writes:  
24 Only three precincts at the eastern end of Washington County  
25 could be removed while maintaining a BVAP of 50 percent or two

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1 precincts at the western tip of Vance County could be removed.

2 Did you have a reaction to that?

3 A. Yes. That's also demonstrably false. I was puzzled by  
4 it, and I wanted to test it to make sure that it was as false  
5 as I thought it to be. And in my rebuttal report, I provide  
6 examples of configurations where I would have removed -- I  
7 removed precincts, for example, from Bertie County and  
8 Hertford County and still achieved a majority-Black  
9 Demonstration District.

10 Q. Okay. Now, taking a step back, did you have any  
11 observations about Dr. Trende's Stephenson groupings presented  
12 in his report?

13 A. I did, yes.

14 Q. What was that?

15 A. There is a map where he presents the Stephenson groupings  
16 I believe related to Demonstration District A, and that map  
17 shows not only incorrect information but an impossible county  
18 grouping scenario because it excludes Washington County. It  
19 might be clear if we can bring this up. I can --

20 Q. Yeah. Let's look at Figure 25 on page 43. Because I  
21 just need you to confirm that that's what you're referring to.

22 A. It is. Figure 25 on page 43. Yes.

23 So this figure which purports to show the groupings based  
24 on Demonstration District A actually puts Washington County,  
25 which should be in Demonstration District A; in other words,

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1 Washington County should be included with the counties to its  
2 west, is instead somehow included with the counties on the  
3 eastern side. So this is incompatible with Demonstration  
4 District A.

5 Q. Okay. So let's turn to --

6 MR. FREEDMAN: Troy, why don't we put back slide 26  
7 and we can see where we are.

8 BY MR. FREEDMAN:

9 Q. I think we're up to presentation of race data and dot  
10 plots.

11 Let's start with some basics. What is the purpose of a  
12 dot plot? Like what is it supposed to show?

13 A. So this type of map, which I tend to refer to as a dot  
14 density map, can be helpful for showing the distribution of a  
15 population or multiple populations. So it can be done with  
16 just a single-colored symbol, and it's helpful just to see  
17 either the dots represent one person or maybe 10 people or 100  
18 people. And it helps you see where a population is  
19 distributed in a geographic area.

20 And by using, for example, two colors, one can see the  
21 relative distribution of different groups and it can be a  
22 helpful way of visualizing where people are and aren't within  
23 a geographical area.

24 Q. Thank you. Let's turn to some of your observations about  
25 Dr. Trende's use of dot plots.

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1 MR. FREEDMAN: Troy, can you pull up Plaintiffs'  
2 Exhibit 147, which is a rebuttal report and let's go to page  
3 25 and show Figure 4.

4 BY MR. FREEDMAN:

5 Q. What does Figure Four from your rebuttal report show?

6 A. So there are two graphics here in Figure 4; two  
7 components to the graphic. And I should say here to start too  
8 that when one is doing a dot density map and showing two  
9 populations you want to make sure that those populations are  
10 the appropriate comparators.

11 In Dr. Trende's maps, the symbols shown in the  
12 purplish-blue color are meant to represent people who identify  
13 as Black. In some cases it's 10 individuals who identify as  
14 Black or one individual who identifies as Black. But the  
15 appropriate comparator -- if you're looking at Black people as  
16 a fraction of the overall population, the appropriate  
17 comparator would be everyone else; in other words, people who  
18 do not identify as Black. But instead, Dr. Trende for the  
19 other symbol just uses white people. So that's one issue here  
20 that the two categories I don't think are the appropriate  
21 categories to use if one is trying to do a map that is helping  
22 people visualize the presence of Black population and if that  
23 Black population constitutes the majority.

24 Q. Just so it's clear. What is the issue with Dr. Trende's  
25 presentation of only the White population and the Black



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1 population?

2 A. So the -- as I said, the appropriate comparator here  
3 would be -- if the blue symbols are people who identify as  
4 Black, the appropriate comparator would be everyone else,  
5 people who don't identify as Black. Sometimes this is  
6 referred to as any part Black and no part Black.

7 But the orange symbol instead of using the rest of the  
8 population, this is just single race non-Hispanic White  
9 people, so this is excluding, for example, Hispanic people or  
10 Asian people or Native-American people. And there is a  
11 precinct in Warren County that on Dr. Trende's map there are  
12 more blue symbols than orange symbols. So one would guess by  
13 looking at his map that it's a majority-Black precinct but, in  
14 fact, it's a majority Native-American precinct. The majority  
15 of people in that precinct identify as Native-American, but  
16 because the Native Americans aren't shown in his map one has  
17 led to believe that it's a majority-Black precinct.

18 Q. Let's talk about how Dr. Trende is choosing to depict the  
19 White population and the Black population. How does he  
20 present these in his report?

21 A. Well, you can see in Figure 4 on the left-hand side this  
22 is a magnification of an area of his Figure 23 and you can see  
23 that not only are the symbols different shapes, the orange  
24 symbol which is used to represent White people is  
25 significantly larger. I did a conservative count of the

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1 pixels and I counted more than 3.4 times as many pixels in the  
2 orange symbol as in the blue symbol.

3       So to start with, the sheer size, the symbols  
4 representing the White population are significantly larger.  
5 Further, the blue symbols, and this can be seen on the  
6 right-hand side of the map, the blue symbols are drawn with  
7 the transparency. So if you look at areas -- blue symbols  
8 that are pointed to by green arrows, you can see the labels  
9 through them. In other words, the blue symbols allow things  
10 like the background of the map to be seen through them,  
11 whereas if you look at orange areas that are pointed to by the  
12 dark gray arrows, those obscure things like the roads and  
13 labels that are underneath them. So the orange symbols are  
14 drawn to be opaque, stronger visual impressions than the blue  
15 symbols which are semi-transparent.

16       Also, if you look at the code, there's something called a  
17 stroke value. He assigns a stroke value which essentially  
18 increases the size of the X symbol and he does not do that for  
19 the blue symbol.

20       So the upshot of this is that the orange symbols are  
21 given much more visual weight and the viewer of the map is  
22 given an impression of much more substantial presence for  
23 symbols representing White people than for Black people.

24 Q.    Okay. Let's pull up something that shows this.

25       MR. FREEDMAN: Troy, can you -- the same exhibit

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1 we've been looking at, Plaintiffs' Exhibit No. 147, the  
2 rebuttal report at page 27 and show Figure 5.

3 BY MR. FREEDMAN:

4 Q. Mr. Esselstyn, what does Figure 5 from your rebuttal  
5 report show?

6 A. Yes. This is a figure that I created. Well, I created  
7 the figure, but the part on the left is a figure from Dr.  
8 Trende's report; and the figure on the right is a figure that  
9 I created showing what I consider to be the responsible  
10 version of a dot density map showing the same information.  
11 And I can highlight a number of the things that are different.

12 Shall I go ahead and do that?

13 Q. Yes. That's great. That'll be great.

14 A. So in the map that I created on the right, the symbols  
15 are the same size. They are the same -- they have the same  
16 level of opacity, the symbols themselves, the shapes are the  
17 same. And another important thing is that they were drawn  
18 within the same layer.

19 So on the map on the left, Dr. Trende draws the blue  
20 symbols on top of the orange symbols. So you can't see, for  
21 example, in the center of the map the most densely populated  
22 area, that's the City of Henderson, and a lot of the Black  
23 population there is making it seem -- the presence of the  
24 Black population in Dr. Trende's map is making it seem as if  
25 there is not White population in there as well. But you can

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1 see in the map that I created where the orange and the blue  
2 dots are in the same layer, the population is really  
3 interspersed there.

4 Q. Let's just take a step back. So what part of the state  
5 are we looking at?

6 A. I'm sorry. This is Vance County and this is my  
7 Demonstration District C.

8 Q. Let's just start with how Dr. Trende presented this.  
9 Walk us through that.

10 A. Okay. So as a reminder, he chooses symbols for blue  
11 symbols represent -- I believe in this instance each symbol is  
12 supposed to represent 10 Black adults, 10 Black numbers of the  
13 Voting Age Population. And the orange symbols are meant to  
14 represent 10 -- each orange symbol is meant to represent 10  
15 White adults.

16 Q. And he uses this -- we talked about this earlier. Is he  
17 using this to support the point the Black population in Vance  
18 County is separated from the White population in Demonstration  
19 District C?

20 A. I believe so, yes.

21 Q. Okay. So just walk us through your issue with how that's  
22 presented.

23 A. So as I mentioned before, this categorization of Blacks  
24 and Whites is -- can be misleading if you're trying to  
25 understand whether the Black population is -- constitutes a

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1 majority in a given area.

2       So for the map that I created, the orange dots do not  
3 represent simply White adults but 10 adults who do not  
4 identify as Black. So no part Black is what it says in the  
5 legend, in the bottom right of the map that I created.

6 Q.   And what's the upshot of your re-doing his map?

7 A.   I find that creating this map in a way that I believe  
8 conforms to cartographic best practices shows a much more  
9 accurate depiction of the distribution of population.

10       And you can see, for example, looking at the area, let's  
11 look at the area east of the City of Henderson so that --  
12 again, Henderson is that area in the center of the county that  
13 is one of the most densely populated. If you look to the area  
14 east of that, in Dr. Trende's map, the overwhelming visual  
15 color that I see is orange. It seems like the orange color is  
16 significantly more present than the blue color in that area.  
17 Whereas, if you look in the map that I created and look at the  
18 blue dots and the orange dots, you can see that they're much  
19 more evenly balanced.

20 Q.   And in Dr. Trende's presentation -- again, you mentioned  
21 this earlier -- but how much bigger is the X representing a  
22 unit of number of White people than his purple dot  
23 representing the same unit measure of Black people?

24 A.   3.4 times.

25 Q.   So what -- visually what is that -- what's the -- what's

## B. Esselstyn - Direct Examination

1 the import of that?

2 A. Well that I think in addition to the transparency piece  
3 we talked about just creates the impression of a White  
4 population that is much more significant and has a more  
5 significant presence in these geographic areas than is  
6 actually the case.

7 Q. His map makes it looks like there is three-and-a-half  
8 times as many White people as there really are in the county?

9 A. I don't know that I would quantify it like that because  
10 there are a lot of cases where the symbols overlap each other,  
11 so -- but yes. Multiple times as many.

12 Q. And his map gives the misleading impression about whether  
13 White people are concentrated outside of Demonstration  
14 District C?

15 A. I think that's an accurate statement, yes.

16 Q. Are the same choices how Dr. Trende presents his dot  
17 plots found throughout his report?

18 A. Indeed, yes.

19 THE COURT: What was the percentage of Black  
20 population that you took out of Vance County? You had said  
21 earlier that the Black population outside of your  
22 Demonstration District C was 37 percent, so you put 63 percent  
23 in? Is that what you did?

24 THE WITNESS: Yes. Sixty-three percent of the Black  
25 population, Black adult population in Vance County is in

## B. Esselstyn - Direct Examination

1 Demonstration District C, that's correct.

2 THE COURT: Thank you.

3 MR. FREEDMAN: Now, Troy, let's go back to -- I'm  
4 sorry, Your Honor. Do you have any other questions?

5 THE COURT: No. I'm interested -- I'm learning  
6 about cartographic best practices, but I'm just trying to keep  
7 numbers in my head.

8 MR. FREEDMAN: If you have any questions about  
9 cartographic best practices, he's the man to ask so...

10 THE COURT: If I have any I'll ask him. Don't hold  
11 your breath.

12 MR. FREEDMAN: Thank you, Your Honor.

13 BY MR. FREEDMAN:

14 Q. So Mr. Esselstyn, can you summarize for your -- for the  
15 Court your response to Dr. Trende's report?

16 A. Yes. As I mentioned before, I was surprised at the level  
17 of inaccuracy. He gets things wrong about census data. He  
18 gets things wrong about Stephenson grouping requirements. He  
19 gets things wrong in his disaggregation analysis. He gets  
20 things wrong in his margin of error analysis. He makes --  
21 he's sweeping statements about my maps that are demonstrably  
22 false. He presents maps that I find to be grossly misleading.  
23 So all of that taken together I find cause into question the  
24 soundness of his analysis and thus his opinions.

25 Q. Thank you. I'm going to move on.

## B. Esselstyn - Direct Examination

1 MR. FREEDMAN: Your Honor, at this point I'd like to  
2 make an offer of proof under Federal Rule of Evidence 103  
3 about Demonstration District E which I understand has been  
4 excluded.

5 We proffer the portions of Plaintiffs' Exhibit No.  
6 147, which is Mr. Esselstyn rebuttal report that relate to  
7 Demonstration District E. And I would also like to ask  
8 Mr. Esselstyn a single question as part of our offer of proof  
9 to confirm that he would testify as to what's in his report  
10 were not for the exclusion.

11 THE COURT: You are supposed to answer, "I would."

12 THE WITNESS: I would.

13 THE COURT: Next question.

14 MR. FREEDMAN: Thank you, Your Honor.

15 BY MR. FREEDMAN:

16 Q. Let's turn to slide 27. Can I ask you to just summarize  
17 your opinions again.

18 A. Sure. So I found through my analysis that it's possible  
19 to create a reasonably configured additional majority-Black  
20 district -- State Senate district in the northeastern part of  
21 North Carolina. I found that there are indeed multiple ways  
22 to create such a district, and it is possible in addition to  
23 creating those districts to create maps that include the  
24 surrounding districts in such a way that the surrounding  
25 districts are reasonably configured and comply with the



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1 Stephenson grouping requirements.

2 Q. So let me ask you, taking a step back, was identifying a  
3 compact majority-Black configuration in this part of the state  
4 difficult?

5 A. Was it difficult, you said?

6 Q. Yes.

7 A. The short answer is no. I mean, once one is familiar  
8 with how this process works using the software, incorporating  
9 the appropriate data, using the tools, the process of doing  
10 this was quite straightforward. And as I mentioned, it's an  
11 iterative process so there's time taken to fine tune things,  
12 but I would say identifying these districts was generally  
13 straightforward.

14 Q. Why was it straightforward?

15 A. Essentially because of the concentration and distribution  
16 of the Black population in northeastern North Carolina. It's  
17 distributed in such a way that the shapes that are available  
18 for sort of creating the districts aren't that difficult to  
19 find.

20 Q. And you were able to find it in multiple configurations,  
21 right?

22 A. That's correct.

23 MR. FREEDMAN: Your Honor, before I pass the  
24 witness, I'd like to move into evidence Plaintiffs' Exhibits  
25 69, 70, 147, and 221.

## B. Esselstyn - Cross-Examination

1 THE COURT: They'll be received.

2 (Plaintiffs' Exhibits Nos. 69, 70, 147, 221 were admitted  
3 into evidence.)

4 MR. FREEDMAN: No further questions.

5 THE COURT: Thank you. Cross-examination.

6 CROSS-EXAMINATION

7 BY MS. RIGGINS:

8 Q. Good morning, Mr. Esselstyn. It's nice to see you again  
9 in person this time.

10 A. Good morning. I guess.

11 Q. As a reminder, my name is Alyssa Riggins. I represent  
12 the Legislative Defendants in this case.

13 Mr. Esselstyn, you consider yourself an expert in  
14 analysis of census data; is that right?

15 A. That's correct.

16 Q. So you're aware that the Decennial Census data is actual  
17 population numbers, isn't it?

18 A. That is one way that it is, yes. I will agree with that  
19 statement.

20 Q. And the American Community Survey data is a dataset based  
21 on estimates from a survey conducted by the Census Bureau; is  
22 that right?

23 A. Yes.

24 Q. And American Community Survey can be a little bit of a  
25 mouthful so if I call it ACS going forward, will you know what

## B. Esselstyn - Cross-Examination

1 I mean?

2 A. Absolutely, yes.

3 Q. Only a certain number of a selected people respond to ACS  
4 surveys; is that right?

5 A. I think that's a fair statement, yes.

6 Q. And then the answers from those surveys are used to  
7 calculate estimates that are extrapolated to larger  
8 populations; is that right?

9 A. I think that's a fair statement, yes.

10 Q. On direct you testified that you're an expert in  
11 redistricting; is that right, Mr. Esselstyn?

12 A. I believe so, yes.

13 Q. But you've never drawn a statewide redistricting map for  
14 a state governing authority; is that right?

15 A. With a state governing authority as my client, that's  
16 correct. I have drawn statewide redistricting maps for state  
17 elected bodies, but not for those elected bodies. If that  
18 distinction makes sense.

19 Q. It does. Thank you, Mr. Esselstyn.

20 Prior to appearing today, you've only testified in one  
21 other redistricting case; is that right, Mr. Esselstyn?

22 A. That is correct.

23 Q. And was that the Grant versus Raffensperger case in  
24 Georgia?

25 A. That's correct.

## B. Esselstyn - Cross-Examination

1 Q. And did you draw Gingles I Demonstration Districts in the  
2 Grant case as well?

3 A. I did.

4 Q. Following the 2020 Decennial Census you also drew  
5 electoral districts for counties and various municipal  
6 governing bodies in North Carolina; is that right,  
7 Mr. Esselstyn?

8 A. Correct, in addition to a number of school boards.

9 Q. You did not do any similar work with the 2010 Decennial  
10 Census, did you?

11 A. So I did work for the Town of Cary. That was based on  
12 numbers that the Town of Cary staff provided that were in turn  
13 based on 2010 census data as their sort of base counts, but --

14 Q. Go ahead.

15 A. I'm sorry.

16 Q. Go ahead.

17 A. They were interested in drawing new districts before the  
18 2020 census data were released.

19 Q. But you did not do any sort of work for local school  
20 boards, municipalities, counties, immediately following the  
21 2010 Census; is that right?

22 A. Immediately following I was working for the local  
23 government so I was doing a lot of census-related work for the  
24 City of Asheville; but as far as electoral districts, the City  
25 of Asheville has at large -- the council was elected at large

## B. Esselstyn - Cross-Examination

1 so...

2 Q. In drawing the electoral districts that you did following  
3 the 2020 Decennial Census with the exception of the Town of  
4 Cary that you mentioned earlier, you used the 2020 Decennial  
5 Census data to do those redistricting; is that right?

6 A. That's correct, yes.

7 Q. So you did not use ACS data to draw any of those  
8 electoral districts, did you?

9 A. I did not.

10 Q. So I'd like to turn, if we could, to your first report in  
11 the merits portion of this case, which is PX69, if we could,  
12 please, Mr. Esselstyn. I'd like to look at paragraph 9 which  
13 is found on page 2.

14 A. Okay.

15 Q. All right. And so here you discuss a bit about what  
16 counsel asked you to do in this report; is that right?

17 A. That's right.

18 Q. And you use the phrase, "majority Black" State Senate  
19 District; is that right?

20 A. That's right.

21 Q. By "majority Black" you mean greater than 50 percent; is  
22 that right?

23 A. Yes. And later in the report I specify the  
24 categorization of Black that's used and also specify that  
25 that's considered to be the Voting Age Population.

## B. Esselstyn - Cross-Examination

1 Q. Okay. And you explained the data sources software and  
2 methodology that you used in preparing this report in  
3 Attachment B to PX69; is that right?

4 A. Yes. B as in boy.

5 Q. Thank you. I apologize for mishearing you earlier.

6 Could we please turn to what I believe is page -- PDF  
7 page 46 of Plaintiffs' Exhibit 69. All right. Does this look  
8 like the cover sheet to Attachment B of your report,  
9 Mr. Esselstyn?

10 A. It does, yes. And I'm glad -- I had this in front of me  
11 so I'm going to turn there in the paper version as well.

12 Q. That's fine. I prefer my paper too.

13 A. I'm there.

14 Q. So the substance of Attachment B is found in the next  
15 couple of pages; is that right?

16 A. Let's see. Three pages, yes.

17 Q. All right. I'd like to look at paragraph 1, which is  
18 found on page 47, please. Here you list sub bullets A through  
19 E; is that right?

20 A. That's right.

21 Q. And I believe you testified about this yesterday, but  
22 just so we're all clear, what are TIGER line files?

23 A. Those are sometimes referred to as the geographic files.  
24 Those actually provide the shapes of the various geographic  
25 units.

## B. Esselstyn - Cross-Examination

1 Q. And then the data in bullet point B is population data  
2 associated with census geographies like counties, blocks,  
3 precincts, or VTDs?

4 A. Yes. Item B, as in boy, that's correct.

5 Q. And the data found in bullet point B is based on the 2020  
6 Decennial Census?

7 A. That's correct.

8 Q. And then does the data in bullet point C allow you to  
9 link the geographies found in bullet point A to the data found  
10 in bullet point B?

11 A. Exactly, yes.

12 Q. Is bullet D the special tabulation for census Voting Age  
13 Population that is released by the ACS?

14 A. It is a URL that would steer one to that dataset, yes.

15 Q. And for this first report, PX69, the CVAP data that you  
16 used is found from the 2016 to 2020, five-year ACS survey; is  
17 that right?

18 A. That's correct, yes.

19 Q. Would you agree with me, Mr. Esselstyn, that the ACS CVAP  
20 data is not provided at the VTD or precinct level?

21 A. That is correct.

22 Q. So -- you would agree with me that the ACS data used to  
23 prepare this report is provided at the block level by the ACS;  
24 is that right?

25 A. I'm sorry. Could you repeat that question, because I

## B. Esselstyn - Cross-Examination

1 don't think it's right the way you said it.

2 Q. At the block group level; is that right?

3 A. At the block group level, that is correct.

4 Q. Would you agree with me that a census block group is a  
5 collection of individual census blocks?

6 A. Yes.

7 Q. And the Decennial Census provides population information  
8 at the individual block level; is that right?

9 A. That's correct.

10 Q. In preparing PX69 you did not disaggregate the ACS  
11 Citizen Voting Age Population data down to the block level  
12 yourself, did you?

13 A. I'm sorry. PX69 is my report from May?

14 Q. Yes, sir.

15 A. I did not disaggregate data from the block group level to  
16 the block level myself for the preparation of that report.

17 Q. In fact, you used disaggregated data published by  
18 something called the Redistricting Data Hub; is that right?

19 A. That's correct, yes.

20 Q. And the Redistricting Data Hub is not run by the U.S.  
21 Census Bureau; is that right?

22 A. That's correct.

23 Q. In preparing this report which is PX69, your May report  
24 in this case, you did not do anything to verify that the  
25 Redistricting Data Hub had conducted the disaggregation



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1 correctly, did you?

2 A. I did not independently verify that. I will say that it  
3 has come to be considered an authoritative source for that  
4 particular disaggregated dataset and it was used by other  
5 experts like Dr. Trende as well.

6 Q. You do know how to disaggregate block group level data  
7 down to the individual block level yourself, don't you,  
8 Mr. Esselstyn?

9 A. I am aware of tools that would allow me to do so. I have  
10 done so in the past using the functions provided by the  
11 Maptitude for Redistricting software package. I don't find  
12 the Maptitude for Redistricting software tool to have the same  
13 robustness as the methodology that's used by the Redistricting  
14 Data Hub in creating their disaggregating data.

15 Q. You're aware there are other methods of disaggregating  
16 data from the block group level to the block level outside of  
17 Maptitude, correct?

18 A. Correct.

19 Q. And, in fact, Dr. Trende provided a way to do it with his  
20 backup data in R code; is that right?

21 A. I don't know whether that's the case or not.

22 Q. Would you agree with me, Mr. Esselstyn, that the  
23 Decennial Census data has a much deeper and more granular way  
24 of looking at the race and ethnicity categories or  
25 classifications than the ACS data?

## B. Esselstyn - Cross-Examination

1 A. Yes. There are parts of the ACS data that are -- have  
2 depth and granularity in ways that the Decennial Census does  
3 not, but when it comes to the race and ethnicity categories  
4 the Decennial Census has more granularity and depth.

5 Q. And the ACS data is reported as an estimate; is that  
6 right?

7 A. At smaller geographic levels, yes.

8 Q. And these estimates come with confidence intervals; is  
9 that right, Mr. Esselstyn?

10 A. Margins of error, yes.

11 Q. And you did not report any of those in PX69, which is  
12 your first expert report, did you?

13 A. I did not report margins of error, correct.

14 Q. I would like to take a look at Table 2 in your first  
15 report, please, Mr. Esselstyn. And that can be found on page  
16 13.

17 A. I'm there.

18 Q. In Attachment E on page 157.

19 So Table 2 appears to be statistics for selected  
20 districts enacted 2023 NC Senate Plan; is that right?

21 A. What I'm seeing on the screen in front of me is different  
22 from Table 2, but I'm looking at Table 2 on page 13 of my  
23 report on the paper in the binder in front of me. Okay. Now  
24 I see it on the screen as well.

25 Q. All right. Thank you.

## B. Esselstyn - Cross-Examination

1       So you've reported CVAP numbers in this table based on  
2 the 2016 to 2020 five-year ACS estimates; is that correct?

3 A.     That's correct. And then a -- yes, I'll leave it at that  
4 for now. Okay.

5 Q.     And then the BVAP number that you're using here is based  
6 on the Decennial Census; is that right?

7 A.     That's right.

8               MR. FREEDMAN: The CVAP -- I apologize. What years?

9               MS. RIGGINS: The 2016 to 2020.

10 BY MS. RIGGINS:

11 Q.     With only two exceptions, the BVAP number is lower than  
12 the Black CVAP number here; is that right?

13 A.     That's correct.

14 Q.     You drew four demonstration plans for northeastern North  
15 Carolina in this first report; is that right, Mr. Esselstyn?

16 A.     That's correct.

17 Q.     Okay. And you reported various demographic summaries for  
18 Demonstration Map A, B, C, and D in Attachment F to your first  
19 report; is that right?

20 A.     I don't remember the -- let me see.

21 Q.     Sure. Can we please turn to page 302 of your report.

22 A.     Sorry. The paper version does not have the page numbers  
23 that the PDF has, so I'm kind of guessing where page 302 would  
24 be.

25 Q.     I also believe it's on the screen in front of you,

## B. Esselstyn - Cross-Examination

1 Mr. Esselstyn, if that's helpful.

2 A. Okay. I'm at Attachment F.

3 Q. All right. And page 3, if you're including the cover  
4 sheet of Attachment F, contains population summary information  
5 for your Demonstration Map B; is that right?

6 A. That's correct.

7 Q. And the far right column that says percent 18 plus  
8 AP\_BLK, do you see that?

9 A. I do.

10 Q. So is this the Decennial Census data voting age any part  
11 Black number?

12 A. It is.

13 Q. Okay. And that's below 50 percent; is that right?

14 A. That's correct.

15 Q. And then you report the same statistics for plans A, C,  
16 and D; is that right?

17 A. In the -- you're talking about in the attachment or in  
18 the tables in the reports?

19 Q. In Attachment F that we're looking at, yes.

20 A. I believe so. That was certainly my intent, yes. And  
21 then there's also -- there are also pages that provide data  
22 about the CVAP statistics later in that --

23 Q. Yes.

24 A. -- attachment.

25 Q. All right. So I'd like to flip two pages back to look at

## B. Esselstyn - Cross-Examination

1 the statistics for Demonstration District D, if we could,  
2 here.

3 A. Okay.

4 Q. You see the Demonstration District D also has below  
5 50 percent any part Black Voting Age Population; is that  
6 right?

7 A. I do, yes.

8 Q. And you mentioned this a few minutes ago, Mr. Esselstyn,  
9 but the last four pages of Attachment F to your report, report  
10 Black CVAP statistics for Demonstration Maps A through D; is  
11 that right?

12 A. That's right.

13 Q. Okay. And these, again, were based on the 2016 to 2020  
14 five-year estimates; is that right?

15 A. Yes. These are based on the 2016 through 2020 five-year  
16 estimates.

17 Q. I apologize, Mr. Esselstyn. This is a lot of numbers  
18 for a history major.

19 A. I get it.

20 Q. And all districts here, including Demonstration Districts  
21 B and D, have above 50 percent Citizen Voting Age Population;  
22 is that right?

23 A. That's right.

24 Q. I would like to look at Attachment G to your first report  
25 which is on PDF page 312, so it should be just a couple pages

## B. Esselstyn - Cross-Examination

1 behind where you were looking in your binder.

2 A. Yes.

3 Q. Okay. And this is the 2023 Senate Plan criteria; is that  
4 right, Mr. Esselstyn?

5 A. That's correct.

6 Q. And I believe your counsel asked you a few questions  
7 about this document earlier, so I will try not to be  
8 duplicative.

9 The first criterion here is equal population; is that  
10 right?

11 A. That's correct.

12 Q. And you calculated the equal population percentages for  
13 your Demonstration Districts using Decennial Census data; is  
14 that right?

15 A. That's right. And you can see that specified in the  
16 first line here, that's the data to be used for equal  
17 population.

18 Q. Okay. And sitting here today, you're not aware of any  
19 instance where ACS data would be used to calculate population  
20 deviations for an equal population criterion such as this, are  
21 you?

22 A. I am not aware of such, no.

23 Q. The second bullet discusses county groupings; is that  
24 right, Mr. Esselstyn?

25 A. County groupings and traversals, yes.

## B. Esselstyn - Cross-Examination

1 Q. And those are generally based on the Stephenson criteria,  
2 is that right?

3 A. The groupings piece, yes.

4 Q. And you relied on county groupings that were generated by  
5 Dr. Mattingly in this case; is that right?

6 A. That's right.

7 Q. The fourth bullet here discusses compactness; is that  
8 right, Mr. Esselstyn?

9 A. It does.

10 Q. And you reported district compactness scores in your  
11 report; is that right?

12 A. I did, yes. And the language here talks about compact  
13 electoral districts.

14 Q. You did not report any measures of compactness as to the  
15 minority populations contained within your Demonstration  
16 Districts; is that right, Mr. Esselstyn?

17 A. That is right.

18 Q. But you're aware there are peer-reviewed means of  
19 measuring population compactness within a district; is that  
20 right?

21 A. There are -- yes. There are types of geographic analysis  
22 that one could use.

23 Q. And I believe you located the 2023 Senate Plan criteria  
24 on the General Assembly's website; is that right,  
25 Mr. Esselstyn?

## B. Esselstyn - Cross-Examination

1 A. That's correct.

2 Q. Did you listen to any audio of the Senate Redistricting  
3 Committee hearings regarding the drawing of the 2023  
4 redistricting plans?

5 A. Audio from 2023, I did not.

6 Q. Have you seen any transcripts of the audio of those  
7 committee meetings?

8 A. From 2023, no.

9 Q. I believe we discussed Maptitude earlier; is that right,  
10 Mr. Esselstyn?

11 A. I know I mentioned it since we've been speaking.

12 Q. Okay. And you used Maptitude as one of the software  
13 applications to analyze maps and create your Demonstration  
14 Districts; is that right?

15 A. Yes. I should specify there's a Maptitude general GIS  
16 package and then they have a specialized package called  
17 Maptitude for Redistricting. And so the tool I used is  
18 Maptitude for Redistricting. I will allow that in  
19 redistricting circles people often just call it Maptitude, but  
20 want to specify that I was using Maptitude for Redistricting.  
21 That's a specialized tool.

22 Q. Okay. If I just refer to it as Maptitude moving forward,  
23 can we agree that I am referring to the Maptitude for  
24 Redistricting software package that you utilized in this case?

25 A. Absolutely. And I hope the same would be true if I refer



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1 to it as Maptitude.

2 Q. Perfect. Was any part Black Voting Age Population data  
3 loaded into Maptitude?

4 A. I'm sorry. Any part Black Voting Age Population?

5 Q. Data, yes. Was that loaded into Maptitude?

6 A. Indeed, yes.

7 Q. And you had the any part Black Voting Age Population data  
8 up in the Maptitude view pane while you were drawing; is that  
9 right?

10 A. The view pane. There's a pane -- there's sort of  
11 multiple windowpanes, and it would have been -- I think at  
12 the -- there's a data view, which would have included that  
13 column; there's something called pending changes I believe;  
14 and then there's the map window and various toolbars. But the  
15 view -- it would have been visible, as I said, in the data  
16 view table as well as the pending changes pane.

17 Q. You did not load any socioeconomic data from the ACS into  
18 Maptitude, did you?

19 A. I did not.

20 Q. And so you did not have any socioeconomic data up in the  
21 Maptitude data view pane while you were drawing, did you?

22 A. I did not.

23 Q. I'd like to turn back to the text of your report, if we  
24 could please.

25 A. Sure.

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1 Q. And I would like to look at Figure 1 --

2 MS. RIGGINS: Thank you, Mr. Williamson.

3 Q. -- which is on page 5 of your report.

4 A. I'm there.

5 Q. Before we get to that, I just want to round out a couple  
6 questions I asked you a few minutes ago.

7 You mentioned that you did not listen to any of the audio  
8 from the 2023 redistricting committee hearings; is that right,  
9 Mr. Esselstyn?

10 A. That's correct.

11 Q. You did not also attend any committee meetings in person,  
12 did you?

13 A. I did not.

14 Q. Did you -- you did not submit any proposed districts for  
15 the 2023 cycle, did you?

16 A. I did not.

17 Q. Okay. Did you provide any testimony at any of the three  
18 public hearings across the state in 2023 regarding  
19 redistricting?

20 A. I did not.

21 Q. And so back to Figure 1 on page 5 of your report. The  
22 shaded counties here are majority Black, that's right?

23 A. Majority Black total population, yes.

24 Q. So this is not Black Voting Age Population; is that  
25 right?

## B. Esselstyn - Cross-Examination

1 A. That's correct.

2 Q. And you calculated this using Decennial Census data; is  
3 that right?

4 A. That's correct.

5 Q. Okay. And I believe you testified about this yesterday;  
6 that the total Black population of North Carolina based on the  
7 2020 Decennial Census is 22.5 percent; is that right?

8 A. I don't believe I testified to that yesterday. Can you  
9 say the number again?

10 Q. Yes. That according to the 2020 Decennial Census  
11 22.5 percent of North Carolina's population is Black.

12 A. I do not recall saying that number yesterday.

13 Q. Okay. Can we please pull up Plaintiffs' Demonstrative.  
14 And I would like to look at slide 6 please.

15 Do you see the second bullet point there, Mr. Esselstyn?

16 A. I do.

17 Q. Is that accurate?

18 A. Yes. I remember talking about the 9.0 percent increase,  
19 but I do not believe I mentioned the 22.5 percent in my spoken  
20 testimony but, yes, I'm not questioning the accuracy of that  
21 statement.

22 Q. Okay. But that 22.5 percent there, that's total  
23 population; is that right, Mr. Esselstyn?

24 A. I believe that's right.

25 Q. The Black Voting Age Population is lower; is that right?

## B. Esselstyn - Cross-Examination

1 A. I would have to look. I could --

2 Q. Sure.

3 A. Let's see if one of the attachments includes that.

4 Q. I believe it would be Attachment D -- I'm sorry.

5 Attachment E with the 2023 Senate Plan.

6 A. Okay.

7 Q. So I believe that would be PDF 171 of Plaintiffs' Exhibit

8 No. 69.

9 A. Thank you. There are a lot of pages in these --

10 Q. Yes. I believe Mr. Williamson is going to pop it up on  
11 the screen.

12 (Pause in the proceeding.)

13 A. Is it page 171?

14 Q. 171 of Plaintiffs' Exhibit No. 69. We can also look at  
15 page 170 if it would help you. That shows the total for  
16 Districts 1 through 50.

17 Do you recognize this, Mr. Esselstyn?

18 A. I do.

19 Q. And this is -- go ahead.

20 A. This is part of the stat pack that was included with the  
21 2023 enacted senate -- I have not been able to find it.

22 Q. But you recall that you attached the 2023 stat pack with  
23 the race --

24 A. Yes. It says at the top this is the Census Voting Age  
25 Black Population's report and the final column here is any

## B. Esselstyn - Cross-Examination

1 part Black and the measure there is 21.37 percent. So, yes,  
2 to answer your question -- thanks for your patience -- that is  
3 lower than the number on the demonstrative slide.

4 Q. Thank you, Mr. Esselstyn. We can take this down. Thank  
5 you.

6 Your Demonstration Districts A, B, C, and D, none of  
7 those include Edgecombe County; is that right, Mr. Esselstyn?

8 A. That is correct.

9 Q. Why is that?

10 A. I think any answer that I would provide to that would be  
11 privileged.

12 Q. Do you recall that you answered that question in your  
13 deposition?

14 A. I thought I answered in a similar manner.

15 Q. Would you like me to refresh your recollection?

16 A. Please.

17 Q. Okay. Could we please pull up Mr. Esselstyn's deposition  
18 at page 97?

19 A. And I do not have a paper copy of my deposition.

20 Q. It will appear on the screen. Would you like us to go  
21 get you a paper copy, Mr. Esselstyn?

22 A. If that's possible. It's nice to be able to see the  
23 context.

24 Q. Sure. We have one in our break-out room so my colleague  
25 is going to go get that.

## B. Esselstyn - Cross-Examination

1 A. So I see here in line four that I referred to  
2 communication with counsel. I did not say that was privilege,  
3 but yes. It was related to communication with counsel. Thank  
4 you.

5 Q. And that you did this at the direction of counsel; is  
6 that right?

7 A. That's what I said in my deposition, and I will not  
8 dispute that.

9 Q. So turning back to the text of your expert report, Figure  
10 2 in PX69, which is on page 7. This Figure 2, the shading is  
11 done at the VTD level; is that right, Mr. Esselstyn?

12 A. That is correct.

13 Q. And there are five different portions -- or color --  
14 green-colored sections that correspond to the percentage of  
15 Black Voting Age Population; is that right?

16 A. That's correct.

17 Q. And the darkest green color is 50 percent or above; is  
18 that right, Mr. Esselstyn?

19 A. That is right.

20 Q. So in theory, a VTD that's shaded in at the darkest green  
21 color could be 50 percent Black Voting Age Population or  
22 99.9 percent Black Voting Age Population; is that right?

23 A. Theoretically that could be the case.

24 Q. All right. So I just want to zoom in for a minute here.  
25 There's a small sliver here in the center of Pasquotank

## B. Esselstyn - Cross-Examination

1 County.

2 A. I'm looking at Pasquotank County. I'm not sure what  
3 small sliver you're referencing.

4 Q. There's only a single -- we're going to blow it up for  
5 you, Mr. Esselstyn. Do you see Pasquotank County here,  
6 Mr. Esselstyn?

7 A. I do.

8 Q. And there's a single VTD here shaded in that darkest  
9 green color; is that right?

10 A. I see a single shape, that is that darkest green color.  
11 It's hard to tell here whether that is composed of a single  
12 VTD or potentially 2VTDs.

13 Q. But it's a compilation of VTDs; is that right?

14 A. That darkest green area is composed of one or more VTDs.

15 Q. Okay. And you used 2020 Decennial Census data to create  
16 Figure 2; is that right?

17 A. That's correct.

18 Q. So moving on to Figure 3 on page 8 of your report. These  
19 are the two identified Senate county groupings following the  
20 2020 Decennial Census; is that right?

21 A. I'm sorry. I was flipping to the page. Could you repeat  
22 your question?

23 Q. Sure. So Figure 3 here, does this depict the two  
24 identified Senate county groupings identified following the  
25 2020 Decennial Census?

## B. Esselstyn - Cross-Examination

1 A. I would say that this represents two pairs of two  
2 groupings. One could argue that the map on the left shows two  
3 groupings and the map on the right shows two groupings. So  
4 depending on -- yes, let's say -- can we agree that it shows  
5 two pairs of two groupings?

6 Q. Absolutely. And these two pairs of groupings came out of  
7 the article that you were a co-author on that's cited on  
8 footnote five on this page; is that right?

9 A. That is correct.

10 Q. And Dr. Mattingly was one of your co-authors on that; is  
11 that right?

12 A. That's right. And as a reminder, that article was  
13 generated without consideration of the Voting Rights Act and  
14 that's specified in the article.

15 Q. You're taking my next questions right out of my mouth,  
16 Mr. Esselstyn.

17 So it's fair to say at the time of your publication that  
18 you and your co-authors made an assumption that race did not  
19 need to be taken into account to produce these two groupings;  
20 is that right?

21 A. I would not characterize it the way you just did. You  
22 said race did not need to be taken into account.

23 Q. Yes.

24 A. I would say my co-author -- well, I can't speak for my  
25 coauthors, but my understanding was that there was potential



## B. Esselstyn - Cross-Examination

1 public benefit to be gained by providing groupings that had  
2 been calculated independent of VRA considerations and that's  
3 what we did. That's not to say we felt that there was not a  
4 need to take race into account and, in fact, that's specified  
5 in the article.

6 Q. So there was no assumption made by you and your  
7 co-authors that race was not taken into account?

8 A. I don't agree with what -- sorry. I think I do agree  
9 with what you just said, but that's different than the  
10 question you asked earlier.

11 The wording you used earlier was that race did not need  
12 to be taken into account. I don't agree with that.

13 I will agree that for the article, the purposes of the  
14 article, race was not taken into account.

15 Q. Okay. And that decision was made because you and your  
16 co-authors recognize that there were no VRA issues raised  
17 within the groupings or the districts in the previous 2010  
18 redistricting cycle; is that right?

19 A. I remember you and I discussed this during my deposition.  
20 I -- I can't specifically speak from memory to conversations  
21 with co-authors about that, but in terms of my -- I can speak  
22 for my own reasoning process. And my understanding was that  
23 from the 2010 redistricting cycle, the Stephenson groupings,  
24 the optimal county groupings had been presented and no  
25 challenges had been brought that there were VRA concerns in

## B. Esselstyn - Cross-Examination

1 that cycle.

2 Q. Okay. I'd like to take a look at Figure 6 in your expert  
3 report, Mr. Esselstyn. And I believe that's on page 13.

4 A. I'm there.

5 Q. All right. And this depicts the 2023 North Carolina  
6 State Senate districts in northeastern North Carolina; is that  
7 right?

8 A. That's correct. As the title says, it's selected  
9 districts. Not all of them are labeled, but, yes. It shows a  
10 number of them -- I think six of them are labeled.

11 Q. Okay. And Senate Districts 1 and 2 are single-district  
12 county groupings; is that right?

13 A. That is right.

14 Q. And Districts 4, 5, and 11 are likewise single-district  
15 count groupings; is that right?

16 A. That's right.

17 Q. All right. And District 3, which is not labeled on this  
18 map but that has Lenoir and Craven Counties in it, that's also  
19 a single-district grouping; is that right, Mr. Esselstyn?

20 A. Would you mind repeating the question? I just -- I think  
21 there's a clarification I might add.

22 Q. So there is a three district -- or there is a three  
23 district -- three county single-district cluster south of  
24 Pitt; is that right, Mr. Esselstyn?

25 A. Yes.

## B. Esselstyn - Cross-Examination

1 Q. And you understand that includes Lenoir and Craven  
2 County?

3 A. Yes, and Beaufort County.

4 Q. Yes. And it's not labeled on this map, but would you  
5 agree with me that it's Senate District 3?

6 A. I believe that's correct.

7 Q. Okay. And there are no split counties in Senate District  
8 3, this three-county cluster, are there, Mr. Esselstyn?

9 A. There are not.

10 Q. Okay. Let's look at Figure 9, which is found on page 17  
11 of your report.

12 A. I'm there.

13 Q. Okay. Figure 9 is Demonstration Map A, so it contains  
14 Demonstration District A and the surrounding Demonstration  
15 Districts; is that right, Mr. Esselstyn?

16 A. That's right.

17 Q. And looking at Demonstration District A for a minute,  
18 this district breaks up several of the county groupings that  
19 we just looked at; is that right?

20 A. This district includes counties that are in multiple  
21 county groupings in the enacted 2023 map.

22 Q. Okay. And all of the majority-Black counties identified  
23 in Figure 1 that we looked about earlier with the exception of  
24 Edgecombe County are in Demonstration District A; is that  
25 right, Mr. Esselstyn?

## B. Esselstyn - Cross-Examination

1 A. That is right, yes.

2 Q. And it's correct, isn't it, Mr. Esselstyn, that you  
3 included Washington County in Demonstration District A because  
4 you were generally trying to keep the community of interest  
5 that is the Black vote counties intact, isn't it?

6 A. That was one consideration. As I mentioned earlier in my  
7 testimony, when I'm drawing these districts, it's an iterative  
8 process and I'm looking at a number of considerations and  
9 criteria.

10 Q. Okay. And here in Figure 9 you would agree with me that  
11 Carteret County is split between Districts A2 and A9; is that  
12 right?

13 A. That's correct.

14 Q. And Wilson County is split between A11 and A4; is that  
15 right?

16 A. That is correct.

17 Q. And those counties are kept whole in the 2023 Senate  
18 Plan; is that correct?

19 A. That is correct.

20 Q. I'd like to flip to page 16 which is right before this  
21 figure and look at Figure 8, please.

22 A. Uhm-uhm. I'm there.

23 Q. Okay. This contains a single county grouping made up of  
24 Demonstration District A; is that right?

25 A. There's a single-district county grouping which is, yes,

## B. Esselstyn - Cross-Examination

1 Demonstration District A.

2 Q. Okay. And then the other county grouping here is a  
3 five-district county cluster; is that right?

4 A. That is correct.

5 Q. Okay. And that grouping makes up 23 counties; is that  
6 right?

7 A. I believe that's right, but let me just check.

8 Q. Sure.

9 A. I'll try not to draw on the screen. Twenty-three  
10 counties, yes.

11 Q. And that's almost a quarter of the counties in North  
12 Carolina; is that right, Mr. Esselstyn?

13 A. Yes.

14 THE COURT: There are 100 counties.

15 Let's take a lunch break. Forty-five minutes.

16 (The proceedings were recessed at 12:00 p.m. and  
17 reconvened at 12:45 p.m.)

18 THE COURT: Welcome back. You may continue the  
19 cross-examination.

20 MS. RIGGINS: Thank you, Your Honor.

21 BY MS. RIGGINS:

22 Q. Mr. Esselstyn, I would like to move on to Figure 11 which  
23 is page 20 in your first expert report, Plaintiffs' Exhibit  
24 No. 69, please.

25 A. I am looking at Figure 11.

## B. Esselstyn - Cross-Examination

1 Q. Does Figure 11 depict Demonstration Map B?

2 A. Yes, it does.

3 Q. And you would agree with me that, Mr. Esselstyn, that  
4 neither Demonstration District B or Demonstration District B2  
5 are majority BVAP districts; is that right?

6 A. That is correct.

7 Q. But District B is majority-Black CVAP using the 2016 to  
8 2020 ACS five-year survey data; is that right?

9 A. That is correct.

10 Q. All right. Pasquotank County is split between  
11 Demonstration Districts B and B2 here; is that right?

12 A. That is correct.

13 Q. And Elizabeth City is also split between Demonstration  
14 Districts B and B2; is that right?

15 A. That's right. Although, the vast majority of the  
16 population is in District B.

17 Q. Figure 11 has the same shading by VTD broken down by  
18 Black Voting Age Population that we looked at in an earlier  
19 figure; is that right, Mr. Esselstyn?

20 A. That is correct, yes.

21 Q. All right. And wouldn't you agree with me,  
22 Mr. Esselstyn, that none of the VTDs in Pasquotank County that  
23 were placed in District B2 are above 50 percent BVAP?

24 A. I'm going to look back at figure -- a previous figure  
25 that has this at a larger scale. Figure 10 is a slightly

## B. Esselstyn - Cross-Examination

1 larger scale map. I'm going to restate what I think you asked  
2 and just say I do think it's correct that none of the VTDs in  
3 Pasquotank County that are outside Demonstration District B;  
4 in other words, in Demonstration District B2, are majority  
5 Black.

6 Q. Okay. I'd like to turn and look at Figure 15, if we  
7 could, please, which is on page 24 of your May expert report.

8 A. I'm there, yes.

9 Q. Figure 15 is a map of Demonstration District D; is that  
10 right?

11 A. That is right.

12 Q. All right. And the same split that we were just  
13 discussing in Pasquotank County in Demonstration B is present  
14 here in Demonstration Map D; is that right?

15 A. That is correct.

16 Q. And Demonstration D is likewise not majority-Black Voting  
17 Age Population; is that correct, Mr. Esselstyn?

18 A. That is correct.

19 Q. But it is majority-Black Citizen Voting Age Population  
20 using the 2016 to 2000 five-year CVAP estimates; is that  
21 right?

22 A. That is correct. It's also majority-Black CVAP using the  
23 2018 through 2022 American Community Survey five-year survey  
24 data.

25 Q. But the same cannot be true for Demonstration District B;

## B. Esselstyn - Cross-Examination

1 is that right?

2 A. That is right.

3 Q. So I'd like to flip back and look at Demonstration Map C  
4 which is Figure 14 on page 23, if we could.

5 A. I'm there.

6 Q. So Vance County is split between Demonstration District C  
7 and C11; is that right?

8 A. That's right, yes.

9 Q. The City of Henderson is also split between Demonstration  
10 District C and C11; is that right?

11 A. That is technically correct. I believe that 98 percent  
12 of the population of the City of Henderson is in Demonstration  
13 District C. I chose a configuration that would keep as much  
14 of that municipality's population intact as I could.

15 Q. But that means two percent is in C11; is that right?

16 A. That's right.

17 Q. In the 2023 enacted Senate Plan, Vance County is kept  
18 whole; is that correct?

19 A. Yes, that is correct.

20 Q. All right. You report compactness scores here for  
21 Demonstration Map C in Table 7; is that right?

22 A. That's right.

23 Q. Okay. Do you know how those compare --

24 A. Well, I should say that Table 7 provides statistics for  
25 District C2, C4, and C11, but not District C itself.



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1 Q. Thank you for that correction, Mr. Esselstyn.

2 Do you know how the measures for compactness for Reock  
3 and Polsby Popper for Districts C2, C4, and C11 compare to the  
4 enacted plan for compactness for C4, C11, and C2?

5 A. I believe that's provided later in my -- yes, later in  
6 the report. Yes. On page 29, Table 12.

7 Q. All right. And so it looks like you've taken an average  
8 here in Table 12; is that right?

9 A. I did indeed calculate an average, but I also -- the  
10 metrics for the individual districts are included there as  
11 well.

12 So I think I understood your question to be about how the  
13 compactness scores of the districts compared to the -- in  
14 Demonstration Map C compared with the enacted districts, and  
15 this table provides those scores.

16 Q. Sure. So enacted 2023 Senate District 11 is more compact  
17 than your Demonstration District C11; is that right?

18 A. Both of the scores are higher for enacted 11 than C11,  
19 this is correct.

20 Q. And the Reock and Polsby Popper scores for District 4 in  
21 the enacted 2023 Senate Plan are higher than the corresponding  
22 Reock and Polsby Popper scores for your District C4; is that  
23 right?

24 A. That's correct.

25 Q. And a higher score for Reock and Polsby Popper means they

## B. Esselstyn - Cross-Examination

1 are more compact; is that right?

2 A. Yes. But if you look at the other analogous districts,  
3 Demonstration District C and Demonstration District C2, those  
4 compactness scores are significantly higher for the  
5 Demonstration Districts than they are for the enacted  
6 districts; and that when you look at the averages, the  
7 averages are higher for Demonstration Map C than they are for  
8 the enacted districts as well.

9 Q. So flipping back to page 14, if we could, on page 23 of  
10 your report, please.

11 A. I'm there.

12 Q. Wilson County is split between District C11 and C4; is  
13 that right?

14 A. That's right.

15 Q. Okay. And Wilson County is also kept whole in the 2023  
16 enacted Senate Plan; is that right?

17 A. That's right.

18 Q. You do not report the percentage of each county  
19 population that was contained within the split counties in Map  
20 C anywhere in your report, do you, Mr. Esselstyn?

21 A. I don't think that is included in the report or the  
22 attachments.

23 Q. Okay. So Figure 13, flipping back one page, on page 22,  
24 depicts the modified county groupings used to draw District C,  
25 C4, C11, and C2; is that right?

## B. Esselstyn - Cross-Examination

1 A. That's correct, yes.

2 Q. Okay. And C, C4, and C11 were drawn inside the  
3 three-district grouping depicted in Figure 13; is that right?

4 A. That's correct.

5 So, for example, this grouping, this Stephenson county  
6 grouping that was generated by Dr. Mattingly essentially  
7 dictates that Wilson County must be split. That was not a  
8 choice that I made but a requirement stemming from this -- the  
9 configuration of the county grouping.

10 Q. And that assumes that you would make no alterations to  
11 Demonstrative District C; is that right?

12 A. Right. This grouping is based on Demonstrative District  
13 C.

14 Q. Okay. Do you know what the most populous counties are in  
15 this three-district grouping?

16 A. I know that I have an attachment that would allow me to  
17 confirm this, but --

18 Q. Is that Attachment E which is the legislature stat pack  
19 with race for the 2023 Senate Plan?

20 A. I -- there's an earlier attachment that I provided to  
21 just confirm my Figure 1 map, so this is Attachment C.

22 Q. Okay. We can --

23 A. And this also has total population. So in that three  
24 county grouping I'm guessing that Wilson is going to be one of  
25 the most populous, that is about 79,000; Nash which is at

## B. Esselstyn - Cross-Examination

1 about 95,000.

2 Q. All right. And I believe it's not labeled on the map in  
3 Figure 13, but Wayne County is part of that three district  
4 county grouping; is that right, Mr. Esselstyn?

5 A. That's right. I'm looking on the opposite page, Figure  
6 14, and it's labeled there, but yeah.

7 Q. Okay. Would you agree with me looking at Attachment C  
8 that the population you've reported for Wayne County is  
9 approximately 117,000 people?

10 A. Yes.

11 Q. Okay. And in the preceding page, you report the  
12 population for Vance County; is that right?

13 A. Yes.

14 Q. All right. And is that 42,578?

15 A. That is, yes.

16 Q. And then about halfway up the page, you also report the  
17 population for Nash County at 94,970 people; is that right?

18 A. That's right.

19 Q. Do you see the population of Franklin County on the  
20 preceding page, the first page of Attachment C?

21 A. I do.

22 Q. Is that 68,573?

23 A. Yes, that's correct.

24 Q. So both Franklin and Nash Counties are more populous than  
25 Vance County; is that right?

## B. Esselstyn - Cross-Examination

1 A. That's correct.

2 Q. And Nash County is also more populous than Wilson County;  
3 is that right?

4 A. That's correct.

5 Q. And Franklin and Nash Counties border Warren and Halifax  
6 Counties in District C; is that right?

7 A. This is -- we come down to a finer point of contiguity,  
8 so I believe there's a four-corners type intersection there  
9 where you could say that Nash and Warren are point contiguous.  
10 In other words, they have one point in common, some would  
11 argue that doesn't count as adjacency. There's also a chess  
12 analogy that people sometimes use. But anyway, I will say  
13 that it's very clear that Nash is adjacent to Halifax and  
14 Franklin is adjacent to Warren.

15 Q. You did not produce a version of Demonstration Map C that  
16 went into Nash County, did you, Mr. Esselstyn?

17 A. I did not.

18 Q. Instead, you chose to go in and split Vance County; is  
19 that right?

20 A. My Demonstration Map C does split Vance County and not  
21 Nash County.

22 Q. Okay. And I believe you talked a little bit about the  
23 split in Vance County in Demonstration District C on direct  
24 this morning.

25 I would like to pull up Plaintiffs' Exhibit No. 147

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1 please and look at Figure 5 in that report which is on  
2 page 27, if we could.

3 A. I'm sorry. Can you tell me what that exhibit is? I  
4 might have it in the binder in front of me.

5 Q. I believe you do. Figure 5, it's the comparison between  
6 your dot plot and Dr. Trende's dot plot.

7 A. I see. I don't know which exhibit number references  
8 which.

9 MS. RIGGINS: Do you know what tab number that would  
10 be in the binder? Rebuttal report.

11 THE WITNESS: I'm sorry. Were you asking me?

12 BY MS. RIGGINS:

13 Q. Page 27 of your rebuttal report, Mr. Esselstyn.

14 A. Thank you. I'm there.

15 Q. Okay. You recall talking about these different dot plots  
16 on direct; is that right, Mr. Esselstyn?

17 A. I do.

18 Q. And you criticized Dr. Trende for using Xs and a dot  
19 versus using two dots; is that right?

20 A. Or versus using consistent symbols. That's one of the  
21 criticisms, yes.

22 Q. Okay. And so you would agree with me that a dot is a  
23 circle; is that right, Mr. Esselstyn?

24 A. It actually depends on the symbol set. There are dot  
25 density maps where dots are represented as squares. I don't

## B. Esselstyn - Cross-Examination

1 know if we can zoom in --

2 Q. And Mr. -- I'm sorry. In Dr. Trende's the dots are  
3 circles, is that right, here in Figure 5?

4 A. Yes. Yes. But I think the software actually gives you  
5 the option of using what they call a dot that is a square, or  
6 it could be you could choose a -- yes, you could choose other  
7 symbols too.

8 Q. Okay. And you would agree with me that you can color in  
9 a circle, like you can color it in; is that right,  
10 Mr. Esselstyn?

11 A. I would.

12 Q. But you can't necessarily color inside an X; is that  
13 right?

14 A. This came up in the deposition as well. I do not agree  
15 with that statement. An X, there are different ways of  
16 representing an X. And if an X is simply -- if you think  
17 about it back to high school geometry and a line being the  
18 collection of points that connect two other points, if it  
19 were -- if that's the only line that's composing the X, then I  
20 would argue that that does not have width to be colored in.  
21 But if you look at Figure 4 in my report, this is on page 25,  
22 it's very clear that that X has width, breadth, height area  
23 that could be colored in.

24 Q. Correct. So the X on the left side of Figure 5 that we  
25 were looking at has enough width to be colored in; is that

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1 right?

2 A. It does, yes.

3 Q. But if it was just a pure X without enough width, just  
4 two intersecting straight lines, there would not be a space to  
5 color that in; is that right, Mr. Esselstyn?

6 A. This may be getting down to semantics, but it can be -- a  
7 color can be assigned to it, so it can be assigned a color.  
8 As to whether there would be an outline and then a space  
9 inside that could be colored in, I can see what you're -- I  
10 could see that point, but it's not like a color cannot be  
11 given to an X of the type that had you described.

12 Q. Okay.

13 A. And on a computer screen, it's going -- those lines are  
14 going to be represented as pixels which need to be colored.

15 Q. Okay. So Mr. Esselstyn, you were able to look at Dr.  
16 Trende's backup data and examine it and his code and create  
17 a -- your own version of Dr. Trende's dot plot; is that right?

18 A. I -- your question kind of lumps two things together. I  
19 was able to look at the code that he provided and the  
20 attributes that he chose for his symbols; and then, yes, I was  
21 able to provide a map, a different version, my own version of  
22 the map that he made. But I did not rely on any of his code  
23 for the generation of my map. I created my map using  
24 Maptitude for Redistricting software.

25 Q. Thank you for that clarification, Mr. Esselstyn.



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1 In the bottom right-hand corner of your map on the  
2 right-hand side of this figure, there is a key that shows the  
3 miles based on the scale; is that right?

4 A. Yes.

5 Q. Okay. And I'm -- I don't have a ruler in front of me,  
6 but would you agree that the five-mile scale that's depicted  
7 in the bottom right-hand corner of Figure 5 roughly equates to  
8 the width of Demonstration District C as it goes across  
9 Henderson?

10 A. So I could eyeball it. I don't know if this was  
11 permitted in terms of evidence. There's a kind of geek trick,  
12 or even without a ruler I could use like this badge and  
13 measure with my thumb where on the scale bar five miles is and  
14 then hold that. Would that be okay?

15 Q. I did it with my bar card earlier, Mr. Esselstyn, so it's  
16 fine by me.

17 A. Okay. So I'm essentially taking the width of five miles  
18 based on the scale bar in the lower right, and, of course, the  
19 width is variable. Toward the top it looks like it may be  
20 more than five miles and maybe -- yes. It's in the  
21 neighborhood of five miles.

22 Q. Okay. And the densest population is Henderson in your  
23 math; is that right, Mr. Esselstyn?

24 A. Henderson, the municipality. I believe some of that  
25 population density is also in south Henderson. And there's a

## B. Esselstyn - Cross-Examination

1 map that I included as an attachment to my rebuttal report  
2 that shows that, that shows -- it shows the extent of the  
3 census designated places more clearly.

4 Q. Okay. But you would agree with me that the largest  
5 concentration, or the densest concentration of the dots here  
6 is primarily Henderson?

7 A. Henderson, and I believe some of that is south Henderson.

8 Q. Okay. All right. Do you see another five-mile stretch  
9 in Figure 5 on your map that has as dense of a -- or as dense  
10 of a grouping of blue dots anywhere?

11 A. So there are other dense groupings but they're  
12 significantly smaller. So I would agree that there is not a  
13 dense concentration of blue dots that is of comparable size.

14 Q. Okay.

15 A. But that's true of the orange dots as well. I don't see  
16 a five-mile -- an area of five miles in diameter elsewhere on  
17 the map that has a similarly dense concentration of orange  
18 dots either.

19 Q. Okay. Thank you, Mr. Esselstyn.

20 So sticking with your second report here.

21 MS. RIGGINS: We can take this exhibit down. Thank  
22 you, Mr. Williamson.

23 BY MS. RIGGINS:

24 Q. In your rebuttal report you used a different set of  
25 five-year ACS estimates in your first report; isn't that

## B. Esselstyn - Cross-Examination

1 right, Mr. Esselstyn?

2 A. That's right.

3 Q. And you used the five year 2018 to 2022 ACS estimates in  
4 your rebuttal report; is that right?

5 A. That's right.

6 Q. Okay. And so this would include two years' worth of data  
7 after the 2020 Decennial Census; is that right?

8 A. Yes. I mean, in theory you could have data from 2022  
9 that were collected in the early part of the year whereas the  
10 snapshot date for the Decennial Census was April 1st, 2020.  
11 So there might have been data collected that were in a  
12 calendar year that was two years later but not actually 24  
13 months later.

14 Q. No data for 2021 was included with the 2020 Decennial  
15 Census; is that right, Mr. Esselstyn?

16 A. That's correct.

17 Q. Okay. And the Redistricting Data Hub that you relied on  
18 to disaggregate the CVAP data for 2018 to 2022 was released on  
19 June 24th, 2024; is that right, Mr. Esselstyn?

20 A. That sounds right. I know it was late June of 2024. And  
21 if that's what you're representing, I won't question that.

22 Q. Okay. And that was before your initial expert report was  
23 actually due in this case; is that right, Mr. Esselstyn?

24 A. This is what I learned in August or September of 2024. I  
25 was not aware that the original May deadline got extended. I

## B. Esselstyn - Cross-Examination

1 only learned about that after I had submitted or -- I think it  
2 was after I had submitted my rebuttal report.

3 Q. Yes. You learned about it in your deposition; isn't that  
4 right, Mr. Esselstyn?

5 A. I think I learned about it from counsel shortly prior to  
6 the deposition, which was in September.

7 Q. So we know the Redistricting Data Hub released the  
8 disaggregated 2018 to 2022 five-year estimates in June; but  
9 isn't it true, Mr. Esselstyn, that the ACS released those  
10 five-year estimates for CVAP on January 23rd, 2024?

11 A. I know that in deposition you provided a document that  
12 seemed to indicate that it was, yes, January of 2024. But in  
13 my initial report, I used the disaggregated data from the  
14 Redistricting Data Hub and I was waiting for that specific  
15 disaggregated dataset to be made available.

16 Q. Which was in June of 2024?

17 A. Correct. After I had submitted my initial report.

18 Q. And you made no attempt to disaggregate the CVAP data  
19 that was released on the ACS website in January of 2024  
20 between its publication date and the May expert report that  
21 you authored; is that right?

22 A. That is correct.

23 Q. And at no -- in none of your expert reports do you use  
24 2017 to 2021 five-year estimates; is that right,  
25 Mr. Esselstyn?

## B. Esselstyn - Cross-Examination

1 A. That is correct.

2 Q. And those were available at the time you authored your  
3 May report; is that right?

4 A. The disaggregated data from the Redistricting Data Hub  
5 from memory I can't say with confidence whether -- I know that  
6 the -- I don't know for sure.

7 Q. But as an expert in census data, wouldn't you agree with  
8 me, Mr. Esselstyn, that ACS estimates for CVAP are released in  
9 January or February every year?

10 A. That sounds consistent with the typical pattern --

11 Q. Okay.

12 A. -- I think. I'm -- I'm not great at keeping track of  
13 those dates to be honest.

14 Q. All right. In preparing your rebuttal report, you  
15 updated the CVAP numbers and percentages presented in your  
16 first report for Demonstration Maps A, B, C, and D; is that  
17 right?

18 A. I believe that's right, yes.

19 Q. Using the 2018 to 2022 estimates, the Black CVAP  
20 percentages in Demonstration Districts B and D were lower than  
21 the using 2016 to 2020 dataset; is that right?

22 A. That's right.

23 Q. And, in fact, the Black CVAP percentage in Demonstration  
24 District B fell below 50 percent; is that right?

25 A. That's right.

## B. Esselstyn - Cross-Examination

1 Q. And using the 2018 to 2022 estimates, the Black CVAP  
2 percentage for Demonstration District D fell to 50.14 percent;  
3 is that correct? I'm happy to direct you.

4 A. It won't take me long. 50.14 percent, yes. I'm looking  
5 at Table 8A on page 7 of my rebuttal report.

6 Q. All right. You previously testified as an expert in the  
7 Raffensperger case in Georgia; is that right, Mr. Esselstyn?

8 A. That's correct.

9 Q. And in that case you drew Demonstration Districts in an  
10 attempt to satisfy Gingles I?

11 A. Yes, for both the House and Senate.

12 Q. All right. And you did not use ACS data in your expert  
13 report in the Raffensperger case; is that right?

14 A. That's right.

15 Q. You used the 2020 Decennial Census data to draw your  
16 Gingles I districts in that case; isn't that right?

17 A. That is correct.

18 Q. As an expert in census data, Mr. Esselstyn, do you recall  
19 that approximately three-and-a-half million housing units were  
20 selected for survey in 2022?

21 A. I don't have that number committed to memory. I know  
22 it's something we spoke about in deposition, so there may be a  
23 record that we could refer to. But I don't feel confident  
24 agreeing to that from memory.

25 Q. Sure. Do you recall looking at an exhibit in your

## B. Esselstyn - Cross-Examination

1 deposition that looked at a number of housing units selected  
2 for survey?

3 A. Yes.

4 MS. RIGGINS: Can we please pull up Legislative  
5 Defendants' Exhibit 34, please, Mr. Williamson?

6 THE WITNESS: I don't believe I have that in my  
7 binder here, so if this is -- is this a multi-page exhibit?

8 BY MS. RIGGINS:

9 Q. I think -- I don't -- there's two pages, maybe, but my  
10 question was going to be on -- it's two pages, Mr. Esselstyn.

11 A. Okay.

12 Q. Can you flip to the second page for us.

13 A. As you indicated, this is something we spoke about in my  
14 deposition. And earlier I had requested that if it were  
15 possible to have a paper copy of my deposition, that would be  
16 ideal. I don't seem to have gotten one.

17 Q. I don't know that there are exhibits attached to your  
18 deposition. We can grab you the exhibits, but is it not  
19 possible for you to see the screen zoomed in on the first  
20 page?

21 A. I think we're looking at the second page now.

22 Q. Sure. But if we zoom in to 2022, that line, if  
23 Mr. Williamson can make it larger.

24 A. I think I can -- I think I can -- I can read this, yes.  
25 So -- just so I'm clear on whether I should be waiting, will

## B. Esselstyn - Cross-Examination

1 you be providing a paper copy of the deposition transcript?

2 THE COURT: She's not asking you what you said in  
3 the deposition. She asked you a question about this document.

4 Can you answer the question? Do you need her to  
5 repeat the question?

6 She wasn't asking you what you said in your  
7 deposition. You don't need your deposition to answer the  
8 question. You can just say, "I don't know", or you can answer  
9 the question.

10 Ask the question again.

11 BY MS. RIGGINS:

12 Q. Mr. Esselstyn, do you recall looking at this exhibit in  
13 your deposition?

14 A. Yes.

15 Q. Okay. Can you see line 2022 here?

16 A. I see the line for 2022, yes.

17 Q. Okay. Does this refresh your recollection that  
18 approximately three-and-a-half million initial addresses were  
19 selected for survey in 2022 by the ACS?

20 A. As far as housing units, that's correct.

21 Q. And that's smaller than the entire population of North  
22 Carolina; is that right, Mr. Esselstyn?

23 A. So these are addresses indicating housing units. So  
24 that's not a population count; that is households. And  
25 without an average household size, it's hard to say what



## B. Esselstyn - Cross-Examination

1 population that corresponds to. But it would have to be --  
2 well, in -- the entire population of North Carolina is almost  
3 exactly three times that number, so if you had a household  
4 size of three people, I don't -- I don't know. I've seen that  
5 number, but I don't remember the median household size for  
6 North Carolina in 2020 or 2022, but I'm not prepared to answer  
7 a question about how that number compares to population  
8 because it's not a population count; it's a household count.

9 Q. All right. Mr. Esselstyn, do you recall how many  
10 households of this three-and-a-half million number were  
11 selected from North Carolina in 2022?

12 A. Not off the top of my head, no.

13 Q. Do you recall looking at an exhibit with that answer in  
14 your deposition?

15 A. I do.

16 Q. Would it help refresh your recollection if we showed you  
17 that exhibit?

18 A. Very much.

19 Q. Could we please pull up Legislative Defendants' Exhibit  
20 35, please.

21 Do you recognize this document, Mr. Esselstyn?

22 A. I think, yes.

23 Q. Okay. If we could zoom in and make it a little bit  
24 bigger. Thank you.

25 For 2022, how many initial addresses were selected in

## B. Esselstyn - Cross-Examination

1 North Carolina?

2 A. 110,296.

3 Q. Okay. And then do you see the next column to the right  
4 indicates a final interview number, Mr. Esselstyn?

5 A. I do see that.

6 Q. And so approximately 60,600 households were selected for  
7 final interview; is that right?

8 A. That's right.

9 Q. All right. And you're not aware of the ACS publishing  
10 the addresses that were selected; is that right,  
11 Mr. Esselstyn?

12 A. I am not aware of that.

13 Q. So you don't know how many people, if any, the ACS  
14 surveyed in, say, Bertie County in a given year?

15 A. I do not know that.

16 Q. As an expert in the census, can we agree that the ACS  
17 publishes response rates of those selected for survey?

18 A. As an expert in the census can we agree? I can say that  
19 response rates are published for geographic areas, yes, that  
20 are related to the addresses selected that we see here.

21 Q. Okay. And do you recall looking at the numbers reported  
22 by the ACS nationally regarding the response rates in your  
23 deposition?

24 A. I do, yes.

25 Q. Do you recall that in 2020 the response rate nationally

## B. Esselstyn - Cross-Examination

1 was approximately 71 percent.

2 A. That sounds -- I remember I think it was in the  
3 seventies. I can't say I remember that exact number.

4 Q. Would it help you if we showed you the deposition  
5 exhibit?

6 A. Very much, yes.

7 Q. Can we please pull up Legislative Defendants' Exhibit 36.  
8 Do you see that this is the response rate for the U.S.  
9 for housing unit?

10 A. For housing units, yes.

11 Q. And so zooming in on 2020, if we could please. Does this  
12 refresh your recollection that the response rate nationally  
13 was 71.2 percent?

14 A. It does.

15 Q. Okay. And Mr. Esselstyn, you are also aware that the ACS  
16 uses imputation methods like assignment and allocation to  
17 generate responses for survey questions that are not responded  
18 to in otherwise completed surveys; is that right?

19 A. I'm aware of that, yes.

20 Q. On a basic level, does this mean that for any question  
21 that's left blank or where the ACS deems an answer to be item  
22 nonresponse, that the ACS generates data based on other survey  
23 responders to fill in the missing responses?

24 A. I think either other survey responders or analogous  
25 responders in different years.

## B. Esselstyn - Cross-Examination

1 Q. And you're aware that the ACS publishes allocation rates  
2 for where they have allocated these nonresponses; is that  
3 right, Mr. Esselstyn?

4 A. I believe that's correct, yes.

5 Q. Okay. Do you recall that the ACS allocated approximately  
6 10 percent of responses in 2020 for the citizenship question?

7 A. I recall a number in that neighborhood. You say  
8 approximately 10 percent?

9 Q. Yes, sir.

10 A. If that's what you're representing, I won't challenge  
11 that or question that.

12 Q. Okay. You did not publish any allocation rates for the  
13 citizenship question in your report, did you, Mr. Esselstyn?

14 A. I did not.

15 Q. And you likewise did not report any margins of error in  
16 your expert reports for CVAP; is that right, Mr. Esselstyn?

17 A. I did not report those.

18 Q. All right. Sitting here today, do you know what the  
19 margin of error is for the 2022 Black CVAP for Demonstration  
20 District D?

21 A. Not by memory, no. And there's not just one such margin  
22 of error.

23 Q. Is that because the margin of error itself is an  
24 estimate, Mr. Esselstyn?

25 A. No. It can be calculated at different percentages. So,

## B. Esselstyn - Cross-Examination

1 for example, there can be a 90 percent margin of error or a  
2 95 percent margin of error. It's not one -- the census  
3 publishes margins of errors for geographic units in the  
4 American Community Survey, but my districts are composed of  
5 collection of units.

6 Q. Right. So the ACS publishes margins of error at a  
7 90 percent confidence interval; is that right, Mr. Esselstyn?

8 A. That's correct.

9 Q. Okay. Are you --

10 A. Dr. Trende suggests that in other situations people use a  
11 different confidence interval.

12 Q. Have you done any academic work regarding the census with  
13 90 percent confidence intervals?

14 A. Have I done academic work regarding the census with  
15 90 percent confidence --

16 Q. Let me -- let's toss that.

17 Have you done any academic work regarding 90 and 95  
18 percent confidence intervals? Do you have an understanding  
19 that there's a difference between 90 and 95 percent  
20 confidence interval in your field?

21 A. I do have an understanding that there's a difference,  
22 yes.

23 Q. And a 95 percent confidence interval generally indicates  
24 a higher level of confidence in the data or a smaller error  
25 margin than a 90 percent confidence interval; is that right,

## B. Esselstyn - Cross-Examination

1 Mr. Esselstyn?

2 A. It's a higher degree of confidence.

3 Q. So if the margin of error for Black Citizen Voting Age  
4 Population in Demonstration District D was half a percent,  
5 Demonstration District D with a Black CVAP at 50.15 percent  
6 would be within the error margin; is that right,

7 Mr. Esselstyn?

8 A. The plus or minus half a percent, you go to the extreme  
9 maximum of that, 50.64 and the extreme minimum would be 49.64.

10 Q. And 49.64 percent would be below 50 percent; is that  
11 right, Mr. Esselstyn?

12 A. That's right.

13 Q. All right. Earlier this morning on direct I believe your  
14 counsel asked you a question about weighting, do you recall  
15 that?

16 A. About -- I beg your pardon.

17 Q. Weighting. You were discussing Dr. Trende's -- you were  
18 criticizing Dr. Trende about weight. Do you recall that?

19 A. In the context of disaggregation?

20 Q. You were criticizing -- you recall criticizing Dr. Trende  
21 in your rebuttal report; isn't that right, Mr. Esselstyn?

22 A. I do recall, yes.

23 Q. Specifically, do you recall criticizing Dr. Trende for  
24 his statement something along the lines of the AC -- you don't  
25 know the weight the ACS is assigning to the CVAP data; is that

## B. Esselstyn - Cross-Examination

1 right?

2 A. Oh, this was from the discussion of differential privacy  
3 perhaps?

4 Q. Yes.

5 A. Oh, I remember talking about that.

6 Q. You would agree with me, though, wouldn't you,  
7 Mr. Esselstyn, that the ACS, in fact, does use different  
8 weighting procedures; is that right?

9 A. The Census Bureau does use different weighting  
10 procedures, I can agree with that statement, yes.

11 Q. Okay. You're the principal of Map Figure Consulting;  
12 isn't that right, Mr. Esselstyn?

13 A. It is, yes.

14 Q. Are you the only employee of Map Figure Consulting?

15 A. Indeed, yes.

16 Q. Do you recall looking at Dr. Mattingly's rebuttal report  
17 on your direct this morning, Mr. Esselstyn?

18 A. Yes.

19 MS. RIGGINS: Could we please pull up Plaintiffs'  
20 Exhibit No. 114, please, Mr. Williamson.

21 THE WITNESS: Is this Dr. Mattingly's rebuttal  
22 report?

23 BY MS. RIGGINS:

24 Q. Yes, sir. Can we please go to page 2.

25 Do you recall discussing this on -- this figure on direct

## B. Esselstyn - Cross-Examination

1 this morning, Mr. Esselstyn?

2 A. Yes.

3 Q. And so I believe that the top map in Dr. Mattingly's  
4 Figure 1 here depicts the county grouping with Demonstration  
5 District A frozen; is that correct?

6 A. That is my understanding, yes.

7 Q. Pitt and Edgecombe are not paired together in this  
8 figure; is that right?

9 A. That's correct.

10 Q. Okay. And in fact, with the exception -- well, let's go  
11 through it this way.

12 Do you see the reddish county cluster that would be a  
13 two-district county cluster in the easternmost part of the  
14 state?

15 A. Yes, I do.

16 Q. That's different than both of the initial pairings of  
17 county clusters identified for northeastern North Carolina in  
18 your original report; is that right?

19 A. That is different than the two-district county clusters  
20 that were generated just using the census data from the --  
21 after the release of the 2020 census data, yes.

22 Q. And in this top map in the figure here, Franklin, Nash  
23 and Edgecombe are paired together in a single-district county  
24 grouping; is that right?

25 A. I think so, yes. Franklin, Nash, and Edgecombe. I'm



## B. Esselstyn - Cross-Examination

1 almost 100 percent certain --

2 Q. Would it help if I pull up Joint Exhibit 1 and showed it  
3 to you side-by-side which is the 2023 Senate Plan with the  
4 county groupings?

5 A. I just was able to verify it looking at Figure 15 in my  
6 initial report. I just -- yes. Franklin, Nash, and Edgecombe  
7 are the three counties in that green district.

8 Q. All right. And to the right, the orange county grouping  
9 is Pitt and Beaufort County; is that right?

10 A. Correct.

11 Q. And those counties are not paired together in the 2023  
12 enacted plan; is that right?

13 A. That is correct.

14 Q. Okay. And then is it your understanding, Mr. Esselstyn,  
15 that the grayed-out counties in the top map here, there are  
16 different options that a map drawer could pick for the rest of  
17 those clusters; is that right, Mr. Esselstyn?

18 A. That is correct. In my demonstration maps and  
19 calculations that I provided, this is referenced in my report,  
20 if there were choices like that, I chose the option that was  
21 the same as or as close as possible to the ones used by the  
22 General Assembly.

23 Q. Okay. But there are other options, for example, the  
24 green single-district county cluster in southeastern North  
25 Carolina in the middle map here that were not chosen by the

## B. Esselstyn - Cross-Examination

1 Legislature originally; is that right, in 2023?

2 A. Correct. I'm pretty sure that the General Assembly chose  
3 the option where New Hanover County is grouped with the  
4 counties to the west.

5 Q. Yes. Okay. Mr. Esselstyn, did you report anywhere in  
6 either of your reports the number of impacted counties that  
7 would be changed from the existing 2023 Stephenson grouping in  
8 Demonstration District A?

9 A. So "that would be changed" meaning they would be --

10 Q. Different --

11 A. -- in a district that is a different shape or in a  
12 district that has a different number?

13 Q. In a district that has a different configuration, a  
14 different county grouping pairing.

15 A. I do not believe that there's any part of my reports that  
16 specifically itemize that, but one could derive that from  
17 basically -- because I do provide maps of districts that are  
18 affected, and one could simply count the counties in those  
19 districts.

20 MS. RIGGINS: I do not believe I have any other  
21 questions for you. Thank you for your time, Mr. Esselstyn.

22 THE WITNESS: Thank you.

23 THE COURT: Redirect.

24 MR. FREEDMAN: Thank you, Your Honor.

25 REDIRECT EXAMINATION

## B. Esselstyn - Redirect Examination

1 BY MR. FREEDMAN:

2 Q. Mr. Esselstyn, this morning and a little bit earlier this  
3 afternoon you were asked a couple questions about splits in  
4 your Demonstration Districts. Let me just take this piece by  
5 piece.

6 In Demonstration District D, if you need me to pull it  
7 up, we can. It's Figure 16, PX69. Figure 16, which is on  
8 page 26.

9 My question is: Looking at the rest of this -- looking  
10 at statewide, did you split any more counties than are  
11 dictated by the Stephenson county groupings?

12 A. So this Demonstration Map splits Pasquotank County,  
13 that's the only county other -- that's the only additional  
14 county split compared to the enacted Senate maps.

15 Q. And is that split dictated by -- in any of your  
16 Demonstration Maps A, C, or D, did you split any more counties  
17 that are dictated by the Stephenson county groupings?

18 A. No.

19 Q. Just before we broke for lunch you were being asked about  
20 the Stephenson grouping associated with your Demonstration  
21 District A, and literally just before we broke for lunch you  
22 were asked about a five-district Stephenson cluster that  
23 included 23 counties; do you recall being asked about that?

24 A. I do, yes.

25 Q. Is it your understanding that 23 county five-district

## B. Esselstyn - Redirect Examination

1 cluster is generated by Dr. Mattingly's algorithm after  
2 freezing Demonstration District A and Edgecombe and Pitt?

3 A. That is my understanding, yes.

4 MR. FREEDMAN: Can we pull up the map from the 2011  
5 cycle.

6 BY MR. FREEDMAN:

7 Q. This is a -- I'm showing you the House district map for  
8 the 2011 cycle. Have you seen this before?

9 A. Yes.

10 Q. Do you see the cluster that goes from Stanley County near  
11 Charlotte and then runs across the southern border and up the  
12 coast to Dare?

13 A. Okay. So we -- we -- I'm following the blue lines here.  
14 And, yes, I do see that grouping extending from Stanley County  
15 to Dare County.

16 Q. Do you remember how many counties were in that cluster?

17 A. I don't.

18 Q. Would you -- does the number 21 counties sound right to  
19 you?

20 A. I would have to try and -- would you mind if I count?

21 Q. Please. Go ahead.

22 A. That sounds right.

23 Q. Large Stephenson clusters with large numbers of counties  
24 aren't unprecedented, right?

25 A. That's correct.

## B. Esselstyn - Redirect Examination

1 Q. Now, starting about 1:15 this afternoon you were asked a  
2 series of questions about American Community Survey Data; do  
3 you recall that?

4 A. I don't recall the time of day, but I recall the  
5 questions.

6 Q. Is American Community Survey five-year data commonly used  
7 for redistricting purposes?

8 A. For this type of redistricting purposes, yes, for  
9 Section 2, for Gingles analysis, absolutely.

10 Q. And is American Community Survey five-year survey data  
11 considered reliable for those redistricting purposes?

12 A. Yes.

13 Q. Now, you were asked on cross -- this was at about  
14 12:50 -- about the Vance County split and the Henderson  
15 County -- and Henderson split; do you recall that?

16 A. Uhm-uhm.

17 Q. Why is Vance split the way it is in your Demonstration  
18 District C?

19 A. That's a good question. I considered multiple  
20 configurations and, in fact, I considered one -- this is  
21 discussed in my rebuttal report. I considered a configuration  
22 that actually would have yielded a higher BVAP percentage. In  
23 other words, it would have had a higher percentage of Black  
24 population. I decided not to use that particular  
25 configuration because it divided up the communities of

## B. Esselstyn - Redirect Examination

1 Henderson and south Henderson. So instead, I opted for the  
2 design that you see in Demonstration District C that keeps  
3 those communities largely intact. As I mentioned earlier,  
4 98 percent of the population of Henderson is within  
5 Demonstration District C.

6 Q. Does your Demonstration District C also follow precinct  
7 lines?

8 A. It does.

9 Q. Just so we're clear, why did you -- why did you split  
10 Vance where you did for Demonstration District C?

11 A. So the process -- I've alluded to this before. The  
12 process of coming up with these configurations always involves  
13 consideration of a number of criteria and it's an iterative  
14 process where I'm trying one configuration, trying another,  
15 sort of seeing how they compare; and in the end, I felt that  
16 the configuration that I chose which kept the communities of  
17 Henderson and south Henderson whole was preferable to, for  
18 example, that alternative configuration even though that  
19 alternative configuration would have yielded a higher BVAP  
20 percentage.

21 Q. Does the fact that you split Vance County change your  
22 opinion that Demonstration District C and the other redrawn  
23 districts are reasonably configured?

24 A. No.

25 Q. Turning back to the Stephenson grouping associated with

## L. Collingwood - Direct Examination

1 Demonstration District A, does the fact that the Stephenson  
2 grouping for Demonstration District A include 23 counties  
3 impact your opinion that Demonstration District A is  
4 reasonably configured?

5 A. No.

6 Q. Does the fact that your Stephenson grouping associated  
7 with Demonstration District A includes 23 counties impact your  
8 opinion that the other redrawn districts around Demonstration  
9 District A are reasonably configured?

10 A. No.

11 MR. FREEDMAN: No further questions.

12 THE COURT: Thank you. Anything else?

13 MS. RIGGINS: No, Your Honor.

14 THE COURT: Thank you. Please watch your step as  
15 you come off the witness stand. There's a step up as you come  
16 off the witness stand and a step down through the gate.

17 Plaintiffs may call its next witness.

18 MS. THEODORE: Plaintiffs call Dr. Loren  
19 Collingwood.

20 LOREN COLLINGWOOD,  
21 having been duly sworn, testified as follows:

22 THE COURT: You may examine the witness.

23 DIRECT EXAMINATION

24 BY MS. THEODORE:

25 Q. Hello, Dr. Collingwood. Can you tell the Court how

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1 you're currently employed.

2 A. I'm an Associate Professor of Political Science at the  
3 University of New Mexico.

4 Q. Do you have tenure?

5 A. I do.

6 Q. And where did you earn your academic degrees?

7 A. I did my undergrad at California State University, Chico,  
8 and my Ph.D. at University of Washington in Seattle.

9 Q. And what was your area of focus for your Ph.D.?

10 A. Political science with a focus on American politics, race  
11 and ethnic politics and political methodology for applied  
12 statistics.

13 Q. Okay. And what are your general fields of academic  
14 expertise as a professor?

15 A. Those same fields, race and ethnicity. I teach courses  
16 on our various statistics courses and political science. I  
17 teach courses on immigration, Latino politics, a lot of  
18 voting. I teach a class on voting rights. And so we use a  
19 lot of racially polarized voting particularly in that class.

20 Q. And do you write peer-reviewed academic articles on those  
21 topics, like racially polarized voting and racial politics  
22 statistics?

23 A. Yes, I do.

24 Q. How many times have you published peer-reviewed papers on  
25 the kinds of topics that you've been talking about, roughly?



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1 A. Between 40 and 45 times.

2 Q. Okay. Have you ever analyzed racially polarized voting  
3 in North Carolina before?

4 A. Yes, I have.

5 Q. And when did you do that?

6 A. I was working on an academic article involving racially  
7 polarized voting, and so because race is -- voter turnout is  
8 available by race, so race is on the voter file in North  
9 Carolina, we thought -- it's one of the handful of states that  
10 provide that, we thought we would conduct our analysis in part  
11 in North Carolina because we could look at a variety of  
12 different demographic inputs and compare it to the gold  
13 standard, as it were.

14 Q. Could we pull up PX36. Is this a copy of your opening  
15 report?

16 A. Yes, it is.

17 Q. And let's turn to page 3. Have you served as an expert  
18 on racially polarized voting and on other Voting Rights Act  
19 issues in the cases identified on page 3 of your report?

20 A. Yes, I have. At least -- yeah. All of these cases  
21 either involve racially polarized voting, expertise, or some  
22 other type of voter analysis that I conducted.

23 Q. Okay. And what jurisdictions have those cases involved?

24 A. It's really a wide set of jurisdictions. New York State,  
25 Georgia, Illinois, Wisconsin, Texas, North Dakota, South

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1 Dakota, California, so a variety of states hitting on all the  
2 different regions of the United States. Washington State, I  
3 should mention.

4 Q. And in addition to racially polarized voting analysis,  
5 have you also conducted analyses in those cases of whether  
6 enacted or proposed districts can be expected to perform for  
7 minority voters?

8 A. Yeah, that's a standard of most of my analyses involving  
9 racially polarized voting where I produce estimates of vote  
10 choice by race, and then I also conduct what's known as an  
11 electoral performance analysis to see how different preferred  
12 candidates are going to be expected to do in a particular  
13 district that has maybe newly been drawn or some sort of  
14 demonstrative that we're evaluating.

15 Q. And have courts in those cases accepted your testimony?

16 A. Yes, they have.

17 Q. Do you have experience analyzing racially polarized  
18 voting in other jurisdictions besides the one -- besides the  
19 ones where you've been an expert witness?

20 A. Oh, yes. It's very common for clients to contact me for  
21 a variety of reasons. They want to see how -- whether  
22 racially polarized voting is present in a jurisdiction and how  
23 much. So I've probably done some sort of racially polarized  
24 voting in close to 30 states now or so.

25 Q. Can we call up Plaintiffs' Exhibit No. 36. Is this a

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1 true and accurate copy of your CV?

2 A. It looks like it's very true and accurate, yes.

3 Q. Can we turn to page 2. Can you identify some of the  
4 articles on your CV that relate to racially polarized voting?

5 A. Well, here I would just go by number for convenience for  
6 the Court. We might take number 41, number 40 -- 38, number  
7 37 come to mind. And then some of these other articles here  
8 also use ecological inference which is the common method that  
9 people use to conduct racially polarized voting. That might  
10 be 39, for example, so that type of analysis, and a few others  
11 on my CV.

12 Q. Do any of the articles on your CV involve analysis of  
13 racial politics?

14 A. Yes. The predominant theme and I guess topics of my  
15 research do involve racial politics in some way, whether  
16 that's institutions or attitudes or how legislatures are  
17 responding to different racial group interests so probably  
18 80 percent or so of all my articles, and you can easily tell  
19 that just by perusing my CV that I have done that type of  
20 research predominantly.

21 MS. THEODORE: At this time the Plaintiffs tender  
22 Dr. Collingwood as an expert in the fields of racially  
23 polarized voting, redistricting, racial politics, electoral  
24 performance, and applied statistics.

25 THE COURT: Okay.

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1 BY MS. THEODORE:

2 Q. All right. Dr. Collingwood, can you briefly describe for  
3 the Court the concept of racially polarized voting?

4 A. Well, it's a very basic concept that I always say I  
5 should be able to explain to my own mother. So that's  
6 basically how two different groups of voters would be voting.  
7 So, for example, do Black voters tend to vote a certain way  
8 for a certain set of candidates and do White voters tend to  
9 vote a different way for a different set of candidates.

10 Yes, there may be only racially polarized voting in one  
11 election, but what we tend to do is look at patterns and so we  
12 want to look at a variety of different contests because we  
13 know a priori different contests might feature different types  
14 of dynamics. So that's the idea. We look at a bunch of  
15 different analyses, a bunch of different data. And then we  
16 see on average are Black voters, for example, voting for one  
17 set of candidates and on average are White voters, for  
18 example, voting on a different set of candidates.

19 Q. Did you prepare a slide deck for use in your presentation  
20 today?

21 A. I did.

22 Q. Call that up please.

23 A. It's the Tar Heel colors so hopefully that's acceptable  
24 here.

25 THE COURT: To some.

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1 THE WITNESS: To some, right. Yeah, I know. It  
2 could be risky here, I suppose.

3 MS. THEODORE: I'm so sorry, Your Honor. If we  
4 could take a five-minute break. We have the wrong slides  
5 loaded.

6 THE COURT: Okay. We'll be in recess for five  
7 minutes.

8 (The proceedings were recessed at 1:51 p.m. and reconvened  
9 at 1:55 p.m.)

10 THE COURT: All set?

11 MS. THEODORE: Yes. Thank you, Your Honor.

12 THE COURT: You're welcome. You may examine the  
13 witness.

14 BY MS. THEODORE:

15 Q. All right. Dr. Collingwood, did you prepare a slide deck  
16 to use in today's presentation?

17 A. Yes, I did.

18 MS. THEODORE: Can you call that up?

19 BY MS. THEODORE:

20 Q. So let's turn to the first slide.

21 Dr. Collingwood, so before we get into the details, can  
22 you tell us at a high level what conclusions you reached about  
23 racially polarized voting in Senate Districts 1 and 2 in  
24 northeastern North Carolina?

25 A. Yes. So northeastern North Carolina is characterized by

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1 very high levels of racially polarized voting in extreme  
2 cohesion, minority cohesion among Black voters, such that on  
3 average in State Senate District 1, 97 percent of Black voters  
4 are tending to vote the same way for the same set of  
5 candidates, and then it's a slight uptick to 98 percent in  
6 District 2, sometimes as high as 99 percent. I think this is  
7 some of the very highest cohesion I've seen ever in all of my  
8 analyses.

9 Then at the same time we do see that White voters are  
10 polarized in quite a cohesive way supporting the different set  
11 of candidates, sometimes as high as 80 percent in District 1  
12 and 83 percent in District 2 in recent years.

13 Q. Okay. And after determining that these districts showed  
14 high levels of racially polarized voting, did you draw any  
15 conclusions about whether that racially polarized voting is  
16 preventing Black voters' preferred candidates from getting  
17 elected?

18 A. Right. So that's under the column labeled "blocking."  
19 Since 2018, so the last three election cycles of all the  
20 contests that I analyzed -- and we will get in a moment to  
21 those contests -- White voters are essentially blocking Black  
22 voters from electing their preferred candidates 100 percent of  
23 the time in both of these State Senate districts.

24 The picture gets a little bit more gray in looking at the  
25 2016 election data that I examined. But taken in totality 43

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1 out of 49 elections in which I examined, the White voters are  
2 blocking Black voters from electing their candidates of choice  
3 in State Senate District 1; and 44 out of 49 times, so 49  
4 elections that I examined, White voters are blocking Black  
5 voters from electing their preferred candidate in Senate  
6 District 2.

7 Q. Okay. What's the primary methodology that you use to  
8 study the presence or absence of racially polarized voting?

9 A. The primary methodology that I use and other experts who  
10 study this, whether they're defense experts or plaintiff  
11 experts, is a methodology known as ecological inference.

12 Q. Can you tell us what ecological inference is?

13 A. So ecological inference broadly what you're trying to do  
14 is you're trying to basically make individual level estimates  
15 about voting behavior, in this case vote choice, using  
16 ecological data. We do this because we do not have survey  
17 data typically in a lot of these jurisdictions to establish  
18 whether voting is polarized, so we use precinct data. That's  
19 the smallest unit of analysis or the smallest unit of data  
20 that are provided to us for vote choice from the state, and  
21 indeed, all states provide that. And we can also bring in  
22 demographic information about the race of the voters who  
23 actually voted in those same precincts.

24 This is what is unique about North Carolina is that you  
25 don't have to estimate who did or didn't vote based on their

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1 race. So we have basically the best possible data to conduct  
2 ecological inference.

3 And the intuition where we build up datasets of all the  
4 precincts that have voter -- percent vote for candidate A,  
5 percent vote for candidate B and then we have percent White,  
6 percent Black, and we can essentially make mathematical  
7 assessments using a variety of different formulas and  
8 statistical routines that allow us to give an overall estimate  
9 as to the share of Black voters that are supporting a  
10 candidate and then the same share of White voters that are  
11 supporting that candidate or a different candidate.

12 So I do want to focus slightly on the intuition which I  
13 believe Congressman Butterfield did touch on, and he touched  
14 on what's known as homogeneous precinct analysis which is a  
15 form of ecological inference; but it is true that you want to  
16 look in areas that have a lot of Black people, areas that are  
17 mixed, and areas that have a lot of White people and few Black  
18 people and see if voting is different. And so we take all of  
19 that information and we can basically arrive at an overall  
20 estimate for how the different racial groups are voting.

21 Q. Have you developed a software package to enable the use  
22 of ecological inference?

23 A. Yes, I have.

24 Q. And what's that called?

25 A. That's EI Compare and then I have also worked to develop



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1 a sort of an add-on package called EI Expand and these are  
2 available in the R programming language.

3 Q. And do other experts in the field of racially polarized  
4 voting rely on the software package that you developed?

5 A. Yes, they do.

6 Q. Have you published peer-reviewed academic papers on the  
7 ecological inference methodology that you applied in this  
8 case?

9 A. Yes, I have.

10 Q. About how many?

11 A. Anywhere from five, six different articles probably.

12 Q. Okay. And the expert testimony about racially polarized  
13 voting that we discussed earlier, did that also rely on the  
14 ecological inference methodology that you applied in this  
15 case?

16 A. Yes, it did.

17 Q. And have courts credited your analysis?

18 A. They have.

19 Q. Is ecological inference regularly used by scholars and  
20 experts and courts to examine racially polarized voting in a  
21 particular geographic area?

22 A. Yes. I mean, in every single case, Section 2 type case  
23 like this, the experts have used ecological inference as the  
24 go-to method to understand vote choice by race.

25 Q. Dr. Collingwood, have you ever conducted a racially

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1 polarized voting analysis and found that there wasn't racially  
2 polarized voting or that it didn't result in the defeat of  
3 minority-preferred candidates?

4 A. Yes, I have.

5 Q. Can you say a little bit about that?

6 A. Well, it's very common, especially around and shortly  
7 after the redistricting process but ongoing where a client  
8 will come to me and they want to see if there's racially  
9 polarized voting in a certain jurisdiction, whether that's a  
10 county, a state, a school board, and then they want to see if  
11 White blocking is present. And so what somewhat regularly  
12 happens is that there -- while there is in my technical  
13 definition of racially polarized voting, racially polarized  
14 voting but it might be the case that the minority candidate is  
15 voting 60 percent or so for one set of candidates, but then  
16 the White population is voting 38 percent for the same set of  
17 candidates, and so, yes, there's polarization, but when we go  
18 to do the White blocking to see whether the minority group is  
19 actually able to elect their candidates of choice or their  
20 preferred candidates, the data start to show that actually  
21 minority voters are typically winning most elections that I'm  
22 analyzing or at least more often than not.

23 So in that scenario I basically say I think you don't  
24 have a strong case here and so if you want to proceed, go  
25 ahead, but I'm not going to be the expert if you want me to

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1 say all these things.

2 Q. Was that what you found here?

3 A. No. That's quite the opposite of what we found here.

4 Q. Let's go to the next slide.

5 What regions of North Carolina did you focus on in  
6 analyzing racially polarized voting in this case?

7 A. So overall I focused on four different regions. It's  
8 important to do that just to make sure to the extent that you  
9 can and to the extent that the data are available that you can  
10 make claims and have confidence that you're seeing racially  
11 polarized voting in a variety of different areas because it  
12 can be variable at times.

13 So this includes the enacted Senate District 1, Senate  
14 District 2, and then a demonstration area, which is a  
15 12-county region in northeastern North Carolina, that includes  
16 any of the counties from the -- Mr. Esselstyn's Demonstration  
17 Districts. So any county that fell within any one of those  
18 districts I put into a separate 12-county demonstration  
19 region, and then also statewide.

20 Q. Why did you analyze the demonstration area as well as  
21 Senate Districts 1 and 2?

22 A. Well, obviously, Senate Districts 1 and 2 are sort of the  
23 basis of the lawsuit so it made sense just right there to  
24 conduct racially polarized voting analysis to establish or  
25 examine whether there is and to what degree there is racially

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1 polarized voting in those jurisdictions. And then the  
2 demonstration area made sense because you want to see whether  
3 there's racially polarized voting in an area where you could  
4 hypothetically draw a majority-minority district or a  
5 Black-performing district and that is the region where one  
6 could readily do that.

7 Q. And what elections did you look at for your racially  
8 polarized voting analysis?

9 A. So I looked at statewide contests from 2016 to 2022.  
10 This does include top of the ticket contests featuring  
11 presidential, governor, those types of elections, as well as  
12 various court elections and judge elections between the years  
13 2016 and 2022. So at the time, those were the most recent set  
14 of elections. And I feel like that gives me a wide range of  
15 different election years in case there's different dynamics  
16 that are occurring in midterms -- sorry. Midterms versus  
17 presidentials.

18 And then I'm going to submit a 2024 supplemental report,  
19 and I believe the precinct data just came down like a day or  
20 two ago for that. So all told this is a lot of elections,  
21 more so than what I would say I typically do.

22 Q. Forty-nine total from 2016 to 2022?

23 A. Yes.

24 Q. So let's go to the next slide. And this is Figure 2 of  
25 your report from page 8.

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1 Can you tell us what this is showing?

2 A. So because I looked at almost 50 elections, if I went  
3 ahead and just presented individual -- look at this election,  
4 look at that election, look at these results, especially in  
5 tabular format, it would get overwhelming. So I just want to  
6 point to the Court that I provided the individual results of  
7 all of these contests in the appendix of this report.

8 But for the sake of this analysis, this quickly allows  
9 one to evaluate the extent of polarized voting by race in, in  
10 this case state Senate District 1, where the blue dots up at  
11 the top those are estimates for how Black voters voted in  
12 every single contest from years 2016 to 2022. And the green  
13 dots are how White voters voted in those same set of contests.

14 Each dot provides a confidence band essentially or a  
15 credible interval band so we can assess statistical  
16 uncertainty, and then the Y axis is present voting for the  
17 Black-preferred candidate, so we're only looking at that one  
18 candidate.

19 But as we can quickly see, starting in 2016, the top left  
20 column that's entitled, "2016 Black," I provide an overall  
21 average or mean value for Black vote choice percent for that  
22 year and it's about 97 percent. So on average in all  
23 elections that I analyzed in the year 2016, 97 percent of  
24 Black voters are backing the same candidate.

25 If we flipped over all the way over to 2016 for White,

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1 which is the fifth column over and look at the green dots, we  
2 can say -- we can see that in that same year support for that  
3 same candidate among White voters is just 26 percent. I'm  
4 rounding the numbers here. But you can see quickly that's  
5 very strong evidence in that your -- of strong racially  
6 polarized voting, and that trend continues essentially across  
7 the board where we have strong racially polarized voting in  
8 each year.

9 Q. And you'll see there is sort of like a little outlier  
10 blue dot and outlier green dot; do you see those?

11 A. I do see those.

12 Q. We'll get to these a little bit later in the  
13 presentation.

14 Do you see any trend over time in the amount of support  
15 that White voters give to the Black-preferred candidates in  
16 District 1?

17 A. Yes. You can see a mild trend line of about five  
18 percentage point drop in White support for the Black-preferred  
19 candidate from 2016 to 2022.

20 I should say for context, it's often the case that I do  
21 not see such a clean trend line in doing these types of  
22 analyses. So that certainly stood out to me.

23 And we do see a consistent between 2016 and 2020, we  
24 consistently see Black voters supporting Black-preferred  
25 candidates 97 to 99 percent, and then a small drop-off in

1 2022.

2 I unpacked that a bit more, and that is because in 2022  
3 there were a couple minor party candidates that were running  
4 in some of these contests that disproportionately Black voters  
5 were voting for. So if you take those minor party candidates  
6 out of the denominator, as it were, Black support would go up  
7 a few more percentage points.

8 So that's the overall kind of analysis that -- what we  
9 can say about this is there's a general trend, especially from  
10 2016 relative to 2022 in drop-off among White support for the  
11 Black-preferred candidate.

12 Q. There's another way to say that, that White racially  
13 polarized voting by White voters is getting more extreme over  
14 time in Senate District 1?

15 A. It does appear to be the case, yes, on average; on  
16 average.

17 Q. Is -- did you reach an overall conclusion about whether  
18 there is racially polarized voting in Senate District 1 on the  
19 basis of your analysis here?

20 A. Yes. I think it's incontrovertible. Anybody looking at  
21 these data in this case, 48 out of 49 elections shows huge  
22 gaps in vote choice by race here.

23 Q. All right. Let's pull up Figure 3, next slide please.  
24 Does this show your racially polarized voting results in  
25 Senate District 2?

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1 A. Yes, this does.

2 Q. Can you walk us through this?

3 A. So, again, the interpretation and read of it is exactly  
4 the same in terms of the mechanics of these findings.

5 But what we actually see here in State Senate District 2  
6 relative to State Senate District 1 is that polarization is  
7 actually more extreme. Even Black voters who are already  
8 close to the threshold in support for a candidate on average  
9 in State Senate District 2 you're looking at 80 -- 98 to  
10 99 percent of Black voters across all four years supporting  
11 the same set of candidates. And then you see about a  
12 six-point drop-off or so in White support for Black-preferred  
13 candidates from 2016 to 2022. And, you know, the -- the  
14 willingness of White voters in these areas or the vote choice  
15 of White voters to go along with Black voters' preferred  
16 candidates in Senate District 2 is overall lower than it is in  
17 State Senate District 1.

18 Q. And so by the end of this period here in 2022, how often  
19 are White voters opposing Black-preferred candidates in Senate  
20 District 2?

21 A. About 83, 84 percent of the time.

22 Q. What did you conclude overall about racially polarized  
23 voting in Senate District 2?

24 A. Racially polarized voting is stark in State Senate  
25 District 2. It's -- I would struggle to come up with any



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1 other interpretation than this.

2 Q. Okay. Let's pull up Figure 4 from your report, which is  
3 the next slide.

4 Is this showing your racially polarized voting results in  
5 the demonstration area?

6 A. Yes, it is.

7 Q. Okay. And what can you tell us about your conclusions  
8 about racially polarized voting in the 12-county demonstration  
9 area?

10 A. Again, the overall set of findings is very similar to the  
11 previous two slides. In general, Black voters are backing the  
12 same set of candidates 98 to 99 percent of the time in the  
13 demonstration area. And now, however, you're seeing even  
14 fewer shares of White voters crossing over to vote with Black  
15 voters in the demonstration area looking towards between 2016  
16 to 2022, a nine to nine-and-a-half point shift away from  
17 supporting Black-preferred candidates in this region over  
18 time.

19 Q. So by the end of this period, how frequently are White  
20 voters voting against Black-preferred candidates in the  
21 demonstration area?

22 A. About 88 percent of the time.

23 Q. Let's turn to the next slide which is Figure 1 of your  
24 report.

25 Can you speak a little bit about how racially polarized

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1 voting in Senate Districts 1 and 2 and the demonstration area  
2 compares to racially polarized voting statewide?

3 A. Yeah. So there's about two takeaways from that  
4 comparison or that type of analysis. The first is Black  
5 voters, whether you're looking at statewide or whether you're  
6 looking in these particular subset regions of the state -- by  
7 subset I mean the demonstration area or the State Senate  
8 District, what have you -- is pretty consistent. It's pretty  
9 consistent that Black voters are cohesive in support for  
10 Black-preferred candidates, are roughly around the same rate.  
11 So extreme Black cohesion regardless.

12 The key difference between the demonstration areas and  
13 the State Senate districts that we just examined relative to  
14 the state is that White voters statewide are more likely to  
15 cross over and to back Black-preferred candidates.

16 Q. And have you quantified that here?

17 A. Yes, I have. You can see that. We're looking at around  
18 28 to 30 percent of White voters on average are backing  
19 Black-preferred candidates. And if we recall in the most  
20 recent slide it was down to I think 11.61 percent by 2022 of  
21 White voters were backing the Black-preferred candidate. So  
22 that's a gap of, you know, pushing 18 percent or so.

23 Q. Also a gap comparing statewide to the Senate District 1  
24 and 2?

25 A. Correct.

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1 Q. What's the consequence of the sort of higher level of  
2 White crossover voting across the state compared to the lower  
3 level of White crossover voting in the sort of area of  
4 northeastern North Carolina you focused on here?

5 A. Yeah. When I've done research and kind of read books  
6 about southern politics and maybe say 20, 30 years ago, it was  
7 quite standard that in order for Black-preferred candidates to  
8 win, you had to get around 30 percent of the White vote needed  
9 to be going, you know, in support with the large share of  
10 Black voters, and that's about what you're seeing here.

11 So in North Carolina statewide, that's why we have such  
12 competitive elections, or at least in part, is because around  
13 30 percent of White voters in any given contest are crossing  
14 over with Black voters, and so that's why we see  
15 Black-preferred candidates winning statewide from time to time  
16 or, you know, fairly consistently; they don't always win, but  
17 I think we all know that North Carolina is maybe the most  
18 competitive state across the board in the country or certainly  
19 one of the top few.

20 But what that means is if we go to the demonstration  
21 area, in order for a Black-preferred candidate to win, you  
22 essentially because White voters are crossing over less  
23 relative to statewide, basically the BVAP, or the Black Voting  
24 Age Population, is basically going to need to be higher than  
25 what it would need to be if you didn't have as much crossover

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1 voting as you do here.

2 Q. All right. Let's go to the next slide. This is Table 1  
3 in your report from page 5.

4 Can you tell us what this is showing?

5 A. So this is just a tally of all the different contests  
6 that I looked at from 2022 and 2020. It lists the year of the  
7 contest, which contest it is, and then whether there's --  
8 whether I found statewide racially polarized voting as well as  
9 whether I found racially polarized voting in State Senate  
10 District 1 or State Senate District 2.

11 Q. So sort of just like walk us through the first row of  
12 this table with the Beasley-Budd contest?

13 A. Right. So it says year 2022 and then the contest which  
14 is U.S. Senate -- and those are some nice mountains -- and  
15 then under the column I have labeled Democrat or Dem which is  
16 the candidate's name is Beasley, and then Rep for Republican  
17 is Budd, and then it's -- basically asked the question: Is  
18 there statewide RPV, that's that column name, if there is it  
19 gets a yes; if there's not, it gets a no. And then the same  
20 thing for SS1-RPV for State Senate District 1 and SS2-RVP for  
21 State Senate District 2.

22 Q. And we'll get to those last two columns about blocking in  
23 a little bit.

24 A. Okay.

25 Q. Did you find racially polarized voting in every contest

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1 in Senate District 1 and Senate District 2 in 2020 and 2022?

2 A. Yes, I did. You can see that it's full of yeses here.

3 Q. All right. Let's go to the next slide, and this is  
4 showing Table 2 on page 6 of your report.

5 Tell us what this slide is showing.

6 A. So this is the exact same thing but for years 2018 and  
7 2016.

8 A lot of the reason why I do this is because I want to  
9 show that I'm looking at a variety of different contests.  
10 It's not just a handful that are cherrypicked or something  
11 like that. So this is the exact same setup, but just these  
12 different contests in these different years and different  
13 candidates.

14 Q. Did you find racially polarized voting in every contest  
15 in Senate District 2 in all but one contest in Senate District  
16 1?

17 A. That's correct, yes.

18 Q. And was that one exception the 2016 State Supreme Court  
19 race between Edmunds and Morgan?

20 A. Yes. That is an interesting contest. It has a double  
21 asterisks there on their names, and the reason is because that  
22 was a nonpartisan contest.

23 And I did a little bit more digging on that contest, and  
24 I think that's the last year that there was a nonpartisan  
25 Supreme Court contest and there were -- I think relative to

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1 the presidential voter turnout that year, there was something  
2 like 800,000 fewer people who voted in that contest. So while  
3 we can't say for sure what that strongly suggestive of is  
4 that's a low information contest and the key piece of  
5 information that is missing is the partisan identification of  
6 the candidate which generally, especially in southern  
7 politics, the partisan identity of the candidate is often a  
8 heuristic for racial policy positions or different type of  
9 redistribution policy positions that Black voters tend to  
10 preference relative to White voters. So that Q is missing in  
11 that particular contest.

12 As it turns out, and I'm sure we'll get to this more  
13 later, Morgan is Black and Edmunds I believe is not Black. So  
14 I actually went and looked at the probability distribution of  
15 those two surnames, because I do a lot of research in Latino  
16 politics and study ethnic voting patterns. And there, because  
17 surnames are often distinctive, right, you can typically tell,  
18 the correlation between a Spanish surname and someone being  
19 Hispanic is quite high, whereas the names Morgan and Edmunds  
20 could go either way. And so just the name right there is not  
21 enough for voters to make a clean, strong racial assessment  
22 about either of those.

23 So a low-information voter who doesn't have party and  
24 then the surname itself doesn't provide that voter a lot of  
25 information to vote. And so a lot of the reason why -- that's

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1 probably a strong explanation why moving towards a million  
2 voters decided not to cast a ballot in that particular  
3 contest.

4 MS. McKNIGHT: Your Honor, pardon me. I need to  
5 lodge an objection. I believe his testimony about surname  
6 analysis of any of the contests here is outside the scope of  
7 his expert report. If counsel believes it's inside his  
8 report, I'd like to hear it. Thank you.

9 THE COURT: Is it in the report?

10 MS. THEODORE: Yeah. It's in the rebuttal report at  
11 page 4.

12 (Pause in the proceeding.)

13 MS. McKNIGHT: Thank you, Your Honor. I withdraw my  
14 objection.

15 THE COURT: Thank you.

16 You may proceed.

17 BY MS. THEODORE:

18 Q. Okay. So other than this 2016 State Supreme Court race,  
19 were all the other elections you analyzed from 2016 to 2022  
20 partisan contests that supplied the party the sort of  
21 heuristic you were talking about to voters?

22 A. Yes.

23 Q. And this Morgan-Edmunds race, is that that dot that we  
24 were talking about earlier that looked a little different than  
25 the other dots on your chart?

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1 A. Yes, it is.

2 Q. All right. Does the fact that there wasn't racially  
3 polarized voting in this one election in State Senate District  
4 1 undermine your overall conclusion about extreme racially  
5 polarized voting in State Senate District 1?

6 A. No. I mean, it's just one contest out of 49 from eight  
7 years ago, and so I don't think any analyst would look at  
8 almost 50 elections and say, well, two percent of the time  
9 this happened and so therefore that's going to overweigh or  
10 outweigh 98 percent of the evidence. It adds a bit of  
11 context, but overall, you're still seeing strong extreme  
12 racially polarized voting.

13 Q. Thank you. Okay. Let's turn to the next portion of your  
14 report. Did you also analyze whether racially polarized  
15 voting in Senate Districts 1 and 2 is preventing  
16 Black-preferred candidates from winning elections in those  
17 districts?

18 A. Yes. That's the second main portion of what's known as  
19 the Gingles analysis that I'm conducting here.

20 Q. Is that often referred to as the Gingles III analysis?

21 A. Correct.

22 Q. How did you conduct this part of the analysis?

23 A. Basically, what I did is I subset all the precincts that  
24 are in say State Senate District 1 and State Senate District 2  
25 from all the statewide precincts. So I take all of these



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1 exact same 49 contests, and then within the precincts that  
2 fall within State Senate District 1 and State Senate District  
3 2, I simply sum up all of the votes for candidate A and then  
4 all of the votes for candidate B and then the total and divide  
5 candidate A by total, candidate B by totaled, and then I can  
6 get an overall percent of the vote for the two candidates in  
7 that area from the statewide contest but just in that State  
8 Senate District 1 or State Senate District 2 respectively.

9 Q. And why do you use statewide elections rather than past  
10 State Senate elections to conduct this performance analysis?

11 A. There's a couple different reasons, but the main reason  
12 is that previous State Senate districts and results while  
13 potentially useful or potentially valuable and may be a  
14 racially polarized voting context, they're going -- it  
15 comprises a different geographic area than the new State  
16 Senate District 1 or State Senate District 2, right? It's  
17 going to be a different configuration and so it doesn't make  
18 sense to include precincts and areas that are not in the new  
19 jurisdiction. And so really the safest way to do that is to  
20 rely on statewide contests because you know those precincts  
21 will be everywhere in the state, so you can look at both the  
22 state Senate contests as well as -- or districts as well as  
23 alternative demonstration maps as well and you can do apples  
24 to apples everywhere.

25 Q. And you can be sure that -- fair to say that when you're

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1 using a statewide contest you can be sure that you'll have the  
2 same candidates running against each other in all portions of  
3 your new district?

4 A. That's right.

5 Q. So how many elections did you analyze for your  
6 performance analysis?

7 A. Forty-nine.

8 Q. Same ones that you used for your racially polarized  
9 voting analysis?

10 A. That's correct.

11 Q. All right. Let's go to the next slide.

12 This is Figure 5 of your report from page 13 entitled,  
13 "Electoral Performance Results from 2022 for the 2023 enacted  
14 State Senate Districts 1 and 2."

15 Can you tell us what this is showing?

16 A. Yes. This is the results of my electoral performance  
17 analysis, essentially a test of White blocking in State Senate  
18 District 1 and State Senate District 2. There are seven  
19 different contests here, and so I evaluate how the White  
20 preferred versus Black-preferred candidate does in each  
21 contest in each state Senate district.

22 And if you look at the actual chart itself I provide,  
23 there's two columns: One is called, "Enacted State Senate  
24 District 1." The other one is called, "Enacted State Senate  
25 District 2," and I provide the overall mean difference between

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1 the Black preferred and White-preferred candidate.

2 So just right away you can look at the mean difference  
3 here and you can see in 2022 results that the White-preferred  
4 candidate is getting about 16 percentage point advantage over  
5 the Black-preferred candidate over State Senate District 1,  
6 and in State Senate District 2 it rises to about 19 percentage  
7 points.

8 So right there we can establish on the mean that White  
9 blocking is occurring. Then we can go down and look at each  
10 election case-by-case. And so, for example, we can look at  
11 this 2022 Court of Appeals race where Flood, as you can see,  
12 is in green, that's the White-preferred candidate and Flood is  
13 estimated to getting 50 -- is getting 57.5 percent of the  
14 vote, and Thompson, who is the Black-preferred candidate is  
15 only getting 42.5 percent of the vote.

16 So then if you did a numerical count, right, instead of  
17 taking the average, just said who wins, Black preferred, White  
18 preferred, and count that up, you get 100 percent of the time  
19 in both state Senate districts that the White-preferred  
20 candidate is outperforming the Black-preferred candidate and  
21 that's strong evidence of White blocking.

22 Q. Okay. And did you conduct the same analysis for the  
23 2016, 2018, and 2020 elections?

24 A. Yes, I did.

25 Q. And we don't have to do it in the same detail, but let's

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1 go to the next slide.

2 What did you find for 2020?

3 A. So a couple of key takeaways here. One, there's a lot  
4 more elections in 2020. It's a presidential year. Certainly,  
5 White -- Black voter turnout in a presidential year is going  
6 to be quite a bit higher than Black turnout in a midterm year,  
7 as a general rule. And certainly in the analyses I've done, I  
8 confirmed that. And so what that shows then is that, in part,  
9 the gap here drops somewhat from the 2022 midterm results in  
10 terms of the White advantage electorally.

11 But nevertheless, you still see on average the -- in  
12 State Senate District 1 the White-preferred candidate is  
13 beating the Black-preferred candidate by eight percentage  
14 points; and then in State Senate District 2, that average  
15 moves up a little bit to about 10 percentage points; and then  
16 again, if you go down the column, you will see the green bar  
17 ahead of the blue bar in every single contest which means that  
18 100 percent of the time there is White blocking of  
19 Black-preferred candidates in both of these state Senate  
20 districts.

21 Q. Great. Let's go to the next slide.

22 Was there also 100 percent blocking in Black-preferred  
23 candidates in the 2018 contests?

24 A. Yes, there was.

25 Q. And sort of overall in all the contests in 2018, 2020,

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1 and 2022, what were the results with respect to White  
2 blocking?

3 A. There's White blocking 100 percent of the time across --  
4 in all of these different elections. There is some  
5 variability in terms of each individual contest, but overall,  
6 the clear takeaway is that White voters are blocking Black  
7 voters from electing candidates of choice.

8 Q. Okay. Let's go to the next slide.

9 What if you add in 2016?

10 A. Yeah. So again, the overall takeaway in 2016, there's a  
11 little bit more variability here. I think the Black-preferred  
12 candidate wins six times out of 18 in 2016; and then in State  
13 Senate District 2 wins I believe five times out of 18 in 2022.

14 And the elections are a bit closer, of course. But what  
15 you see still overall if you get an average or you took a  
16 percent, 12 divided by 18, the Black-preferred candidate is  
17 getting blocked a majority of the time, so more often than  
18 not, which is, you know, the kind of baseline threshold that  
19 we would look at.

20 Q. All right. Let's go to the next slide.

21 Overall what did you conclude about whether White bloc  
22 voting is preventing Black voters from electing  
23 Black-preferred candidates in State Senate Districts 1 and 2?

24 A. It's pretty clear evidence especially in the three most  
25 recent elections which I think courts typically view as more

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1 probative, the more recent set of elections are typically  
2 viewed as more probative, at least all the jurisdictions that  
3 I've worked. And so if we subset and just look at the most  
4 three recent elections, there's White blocking 100 percent of  
5 the time.

6 Q. That's 31 out of 31?

7 A. That's correct.

8 Q. Okay. And across all four years out of the 49 elections?

9 A. They're still in Senate District 1, 43 out of 49 contests  
10 a very clear strong majority; and then -- in State Senate  
11 District 1 and then 49 out of 49 -- 44 out of 49 in State  
12 Senate District 2 there is White blocking.

13 Q. Thank you. All right. Let's take a step back.

14 Why do you focus on the race of the voter principally  
15 when you're analyzing racially polarized voting?

16 A. The main reason is -- there's a couple of different  
17 reasons, but under the Gingles test, we're looking at -- Prong  
18 2 is asking whether there is minority voter cohesion, minority  
19 voter cohesion; Prong 3 is examining whether White voters are  
20 typically blocking minorities from electing preferred  
21 candidates or candidates of choice, so it really just makes  
22 sense to get data about voters and see how different racial  
23 blocs of voters are voting. And that's the standard; that's  
24 what everybody does and so that's where the focus is.

25 Q. Could a White candidate be a Black voters candidate of

1 choice?

2 A. Oh, certainly, yes. I mean, a White candidate who takes  
3 racially liberal policy positions, such as kind of  
4 redistribution, pro-education policies to try to increase  
5 spending targeted, say, for example, in poor areas that are  
6 disproportionately Black; White candidates that are taking,  
7 say, increased healthcare spending like Obamacare-type  
8 policies where they're trying to get more coverage. White  
9 candidates that are taking those policy positions are in line  
10 with the vast majority of Black voters. Not every single  
11 Black voter, but the vast majority of Black voters. And so it  
12 makes sense that a Black voter is going to vote for a White  
13 candidate who's taking and is associated with the politics of  
14 racial liberalism as it were.

15 Q. And how would the Black voter know whether a White  
16 candidate is more likely to be associated with those sorts of  
17 policies that align with the interest of a Black voter?

18 A. Well, there's a variety of ways, but the first -- the  
19 main cue that -- because the party system has restructured  
20 around race and party so much since the Civil Rights Era,  
21 Black voters, as a general rule, I would argue, know that  
22 democratic candidates are typically going to be supporting  
23 their broad policy positions. It's not across the board, but  
24 not only when it comes to racial politics but politics in  
25 general, people turn to partisan identity of candidates and

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1 they use that as a filter for how they're going to vote. And  
2 when it comes to Black voters, partisan identity of a  
3 candidate is a strong filter for likely racial policy  
4 positions that that candidate is going to take.

5 Q. If you were to look at the race of the candidate, did you  
6 find any evidence that racially polarized voting in  
7 northeastern North Carolina is more likely to cause problems  
8 for Black candidates?

9 A. Yes, I did.

10 Q. Let's go to the next slide.

11 So can you talk a little bit about how frequently  
12 Black-preferred Black candidates lost in this region compared  
13 to Black-preferred White candidates?

14 A. So, you know, this gets a little tricky in terms of the  
15 preference of this and that and just the way we're talking  
16 about it, but there were 12 Black-preferred White candidates  
17 who ran in 2016 and five of them won. So five out of 12 White  
18 Black-preferred candidates won, so for 42 percent that year.  
19 But only of the six Black candidates who ran in 2018 -- or  
20 2016, only one of them won, and they were the Black-preferred  
21 Black candidates, only one of them won in that year.

22 And so this basically shows that in 2016, Black  
23 candidates -- Black voters -- sorry. White voters crossed  
24 over to vote for Black-preferred White candidates more than  
25 they did for Black-preferred Black candidates.



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1 Q. Were you able to look at this same kind of analysis for  
2 any year other than 2016?

3 A. No, I was not. And the reason is because we need to show  
4 that the Black-preferred candidate actually wins such that the  
5 crossover voting and slight variation and support for  
6 different types of Black-preferred candidates is actually  
7 consequential.

8 Q. Did any Black-preferred candidates of any race win in any  
9 year other than 2016?

10 A. No.

11 Q. Okay. We spoke a little bit earlier about the ecological  
12 inference method that you use. Is there academic literature  
13 supporting the view that ecological inferences a valid way to  
14 show that voting is racially polarized?

15 A. I mean, there's a vast literature that basically uses or  
16 examines ecological inference and a lot of it in political  
17 science is geared around specifically racially polarized  
18 voting or turnout by race. So there's a vast literature  
19 basically using the exact same methodology and approach that I  
20 have used in this analysis.

21 Q. Are you aware that Dr. Alford has offered the view that  
22 the differences in voting preferences between Black and White  
23 voters in North Carolina is attributable to partisan  
24 preference and not to any race-based preference?

25 A. Yes, I am.

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1 Q. Are you aware of any academic literature supporting  
2 Dr. Alford's view that when you see the sort of stark  
3 differences in voting behavior by Black and White voters that  
4 you've sort of been talking about today that that could be  
5 explained by partisanship and not by the race of the voter?

6 A. I haven't come across any of that literature, no.

7 Q. Do you think your results in this case are consistent  
8 with a conclusion that polarization in northeastern North  
9 Carolina isn't related to the race of the voter?

10 A. Sorry. Could you say that again?

11 THE COURT: She'll say it after the break. We'll  
12 have a 15-minute recess.

13 (The proceedings were recessed at 2:45 p.m. and reconvened  
14 at 3:00 p.m.)

15 THE COURT: You may continue the direct examination.

16 MS. THEODORE: Thank you, Your Honor.

17 BY MS. THEODORE:

18 Q. Dr. Collingwood, do you think that the extreme degree of  
19 polarization that you've been testifying about is consistent  
20 with the conclusion that polarization is based on partisanship  
21 rather than the race of the voter?

22 A. No.

23 MS. McKNIGHT: Objection, Your Honor. This is  
24 outside the scope of his report. He testified at deposition  
25 that he did no analysis to determine whether these results

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1 were due to partisanship as opposed to racial.

2 THE COURT: Is it in the report?

3 MS. THEODORE: Your Honor, this is the subject of  
4 his entire rebuttal report. His whole report is about  
5 racially polarized voting being based on the race of the  
6 voter.

7 THE COURT: Is there a section in the -- as everyone  
8 here knows, just to review, Rule 26 was designed to actually  
9 not even have to have one side or the other depose the other  
10 expert. You're limited to what is in the report.

11 If you show me the page and the line, then it's  
12 fine. If it's not, it's not. That's the rule. Those are the  
13 rules.

14 So just like we did last time, there was an  
15 objection and then it was withdrawn. If you show me the exact  
16 line, that's what he can testify to. He cannot get outside  
17 the words in his report.

18 MS. THEODORE: So one thing I would point to, Your  
19 Honor, starting on page 2 of his rebuttal report, there's a  
20 section called voting in northeastern North Carolina is highly  
21 racially polarized which is a section that is rebutting  
22 Dr. Alford's analysis of the question of whether polarization  
23 here is based on party instead of race.

24 THE COURT: Read it to me.

25 That's what the law is. I mean, it's for both

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1 sides. I can tell you when the defense presents its case --  
2 this is how civil trials are conducted. This is why the rules  
3 were changed the way they were changed.

4 MS. THEODORE: "Dr. Alford instead makes the case  
5 that Black voters do not prefer Black Democratic candidates  
6 any more or less than they do White democratic candidates, but  
7 he does not explain how such a result, even if it were true,  
8 would undermine my finding that voting in North Carolina is  
9 highly racially polarized based on the race of the voter."  
10 Then he goes on to say that race of the voter determines  
11 candidate of choice.

12 THE COURT: Is that your opinion, Doctor, what's in  
13 there?

14 THE WITNESS: Yes.

15 THE COURT: All right. Next question.

16 Just state what's in the report. That's what the  
17 rules say. We follow the rules. Each side. Just so you  
18 know, I'm kind of a rule's guy.

19 BY MS. THEODORE:

20 Q. Does anything in Dr. Alford's analysis support a  
21 conclusion that partisanship rather than race drives the  
22 extreme racially polarized voting in this area?

23 A. No, he does not make a direct comparison or put the two  
24 competing explanations or hypotheses against one another in  
25 some sort of test or causal test.

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1 Q. Okay. Dr. Alford states on page 19 of his report, "With  
2 the addition of candidate information, the election analysis  
3 provided by Dr. Collingwood clearly demonstrates that the  
4 party affiliation of the candidates best explains the  
5 divergent voting preferences of Black and White voters in  
6 North Carolina elections."

7 Based on your review of his report, do you believe that  
8 Dr. Alford established that party affiliation best explains  
9 the polarized voting preferences of Black and White voters?

10 A. Certainly not party affiliation of the voters since  
11 neither him nor I actually did that analysis, so we can't  
12 speak directly to that.

13 But, again, when it comes to the party identification of  
14 the candidate, there are lots of reasons why candidate --  
15 candidates have certain partisan identifications; that many of  
16 them are due to race or racial attitudes embedded within that  
17 to the extent that partisanship and race are so intertwined.

18 So John Alford -- Dr. Alford is not doing any sort of  
19 test where he's causally establishing that all of this is  
20 really just down to the fact that Black voters are voting for  
21 Democratic candidates and not because of Black voters are  
22 actually voting for based on their race.

23 Q. Do you believe that -- based on the analysis in your  
24 reports that voting in North Carolina -- that voting in  
25 northeastern North Carolina is highly racially polarized based

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1 on the race of the voter?

2 A. Yeah. Based on the actual data analysis that was  
3 conducted where we input the race of the voter and we have  
4 vote choice, so how those voters voted, you cannot arrive at  
5 the -- ascertain the data that I have the results, the  
6 findings that I have, where upwards of 98 to 99 percent of  
7 Black voters are backing the same set of candidates and  
8 between 70 and 80 percent of White voters are backing a  
9 different set of candidates and conclude that that has nothing  
10 to do with the race of the voter.

11 Q. Thank you. All right. Let's turn to another topic.

12 Did you conduct an analysis of whether Black-preferred  
13 candidates could succeed in Plaintiffs' Demonstration  
14 Districts?

15 A. Yes, I did.

16 Q. How did you conduct that analysis?

17 A. I conducted that in the exact same way that I did in my  
18 earlier electoral performance analyses where I subset the  
19 election results at the precinct unit and subset those to each  
20 of the respective demonstration maps or demonstration plans  
21 and then some candidate A, some down candidate B, I get the  
22 total number of votes for candidate A versus candidate B and  
23 divide that by the total votes and that gives me an overall  
24 percent for each candidate.

25 Q. Actually, can we go to the next slide. I think it's

## L. Collingwood - Direct Examination

1 there. Yeah.

2 What did your performance analysis show about the ability  
3 of Black voters to elect their candidate of choice in  
4 Plaintiffs' Demonstration Districts?

5 A. It does show that Black voters basically can elect their  
6 preferred candidates in all of these demonstration maps.

7 Q. Is that reflected in Figures 9 through 12 of your report?

8 A. Let me just verify.

9 Q. I hope I got that right.

10 A. Yes.

11 Q. In your rebuttal report did you also conduct an analysis  
12 of whether current Senate District 5 containing Pitt and  
13 Edgecombe Counties is a performing district for Black voters?

14 A. I did.

15 Q. How was that analysis conducted?

16 A. The exact same way as what I articulated from the other  
17 analyses.

18 Q. You just added up the results in the precincts and Pitt  
19 and Edgecombe instead of in the Demonstration Districts, fair  
20 to say?

21 A. Correct.

22 Q. And what did you conclude about Pitt, whether Pitt and  
23 Edgecombe performs for Black voters?

24 A. That district does perform for Black voters, yes.

25 Q. Let's turn to the section of your report entitled, "BVAP

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1 Analysis." What was the purpose of this analysis?

2 A. The purpose of this analysis is a BVAP analysis, Black  
3 Voting Age Population analysis, the idea is typically during  
4 the map drawing phase, but if there's an area where a Black  
5 majority or Black performing or a VRA district, as it were,  
6 could theoretically be drawn, often it's instructive to  
7 mapmakers and potentially a court to get a sort of a  
8 threshold, what's our best estimate -- what Black voting age  
9 percentage in this general region is a Black-preferred  
10 candidate going to just barely win and/or where there's  
11 basically an equal opportunity in an almost exact equal  
12 opportunity district.

13 Q. So -- and can you sort of walk the Court through how you  
14 went about performing this analysis?

15 A. Yes. So I took the most recent two election cycles, so  
16 that includes all of the elections that I analyzed from 2020  
17 and 2022, that's 27 total elections. The vast majority of  
18 these elections are from the 2020 General; but nevertheless, I  
19 wanted to get the two most recent elections to kind of account  
20 for changes in turnout and other possible dynamics that exist  
21 between presidential and midterm years, and it makes sense to  
22 focus on the most recent elections because typically what  
23 we're trying to predict is if the election were held tomorrow  
24 or fairly soon, how would the outcome, what would the outcome  
25 look like.



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1        So I have 27 contests. So, for example, for the first  
2 contest, I would incorporate two bits of information to  
3 basically build a model as to what the BVAP threshold would  
4 need to be in order for the Black-preferred candidate to win  
5 by just over 50 percent. And that takes basically two bits of  
6 information. It takes voter turnout by race, and we can  
7 establish that because we have -- basically, we know what  
8 voter turnout is by race because we actually have voter  
9 turnout data and voting data by race in North Carolina. In  
10 other places, in other jurisdictions you have to make that  
11 estimate. So we can be much more confident here relative to  
12 other states and other areas that are basically establishment  
13 of voter turnout by race is accurate. And then we take  
14 basically the racially polarized voting analyses that I just  
15 presented and we incorporate that into voter turnout.

16        And so that basically allows us to -- as we simulate and  
17 basically move the dial of Black BVAP up one point at a time,  
18 we can say, okay, we go from theoretically what would a  
19 district here, if we could draw one, at 35 percent BVAP what  
20 would the Black-preferred candidate vote be, and then we can  
21 move it to 36, and move it to 37, and move it to 38, and we  
22 stop basically -- we stop once that estimate gets above  
23 50 percent for the Black-preferred candidate. And we take  
24 that number, we store it, and then we can keep going on with  
25 the additional elections.

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1 And so we wind up with 27 separate BVAPs for all the  
2 different contests that we examine and then we take the  
3 average or the mean of that and that is our estimate of the  
4 overall BVAP that would be required in this area to basically  
5 be a performing district or a narrowly performing or an equal  
6 opportunity district.

7 Q. And that average was 47.07 percent; is that right?

8 A. That's correct. And I also want to say that I conducted  
9 this in the 12-county demonstration area.

10 Q. Why did you choose that region as the relevant region for  
11 the analysis?

12 A. Well, that's the area where a Black-performing district  
13 could most likely or most reasonably be drawn, it's a fairly  
14 compact area; and for the sake of the exercise, it made sense  
15 to include any county that the Gingles I expert had included  
16 in any of his Demonstration Districts.

17 Q. Could you have performed that sort of analysis on Senate  
18 District 1 or Senate District 2?

19 A. That really doesn't make sense because we're talking  
20 about what a hypothetical district would look like in this  
21 particular case versus other analyses, maybe they're not  
22 trying to look at what a hypothetical district would look  
23 like. And so those districts are already established, they're  
24 not hypothetical, we know actually what the BVAP is, and we  
25 know that basically they don't perform.

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1       If we conducted a similar analysis here, we would just  
2 want to look at what the actual performance was in 2020 and  
3 2022, and we know that the Black-preferred candidate lost  
4 100 percent of the time.

5 Q.    So the 47.07 percent average figure, average BVAP figure  
6 that you reached, would a district like that always elect a  
7 Black-preferred candidate?

8 A.    If we actually drew a district that was 47 percent, no.  
9 Keep in mind I'm taking the average of all of those 27  
10 elections. So some elections the BVAP average is lower than  
11 47 percent and some it's higher than 47 percent. But on  
12 average 47 percent or so is basically the best estimate that  
13 the simulation comes up with that would narrowly elect a  
14 Black-preferred candidate, but it is by no means a guarantee.

15 Q.    All right. Let's go to the next slide, and this is  
16 Figure 2 from Dr. Alford's report.

17       Can you explain to us briefly what this is?

18 A.    This is a scatter plot or an X plot. That's -- sometimes  
19 it's typically used to demonstrate -- one second. It's  
20 typically used to demonstrate sort of at the base level what  
21 the voting patterns are by race. This would be potentially  
22 the information that we would input into an ecological  
23 inference formula, for example. We have both race and we have  
24 candidate vote choice.

25       Again, this is a scatter plot where on the X axis we have

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1 percent Black in each precinct and then on the Y axis we have  
2 percent Black for -- sorry, percent for each of the  
3 candidates.

4 And here in this gubernatorial contest, blue, blue line  
5 and blue dot is Cooper, the Democrat; and then the red line  
6 and red dots are Forest, the Republican candidate. So just by  
7 way of example, let's just take the bottom left point, that is  
8 a precinct where there's very few Black people, so  
9 presumably -- we don't know for sure -- but presumably, that's  
10 a predominantly White precinct and we can see there, then,  
11 let's assume this is a predominantly White precinct, very few  
12 voters are actually casting a ballot for the Democrat Cooper.  
13 And likewise, as you go to the very top, this is the same  
14 precinct now mapped out for how Forest is doing in that exact  
15 same precinct, and that precinct is showing that very White  
16 areas are supporting Forest, the Republican.

17 So this is an example for, you know, what racially  
18 polarized preliminary analysis could look like. And the  
19 intersection there is showing, where the two lines are  
20 showing, that's basically showing, you know, 50 -- at what  
21 point on this percent Black X axis are some precincts starting  
22 to basically flip, at what point percent Black are they  
23 starting to flip and that's around 37 percent. What I mean by  
24 flip, I mean going from majority for the Republican to  
25 majority for the Democratic candidate.

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1 Q. Does the fact that some precincts flip at around  
2 37 percent BVAP support a conclusion that a district that had  
3 37 percent BVAP could elect a Black-preferred candidate like  
4 Governor Cooper?

5 A. No, no, of course not. And I would be surprised if  
6 Dr. Alford actually agreed on that point. I think he was just  
7 demonstrating that some precincts do flip at 37 percent.

8 But part of the issue is, is we don't know where those  
9 precincts are located, whether they're located near each  
10 other. Keep in mind we're looking at a 12-county  
11 demonstration region and so a district would not be all of  
12 this space. And then this plot doesn't tell us, you know,  
13 some of these precincts in the middle could be -- could have  
14 five people, some on the outside could have a thousand.  
15 There's variation in precinct size, so potentially you could  
16 run into a situation where you have a precinct right in the  
17 middle that's 37 percent Black. I don't think this is  
18 actually the case but it potentially could be the case, where  
19 you have five voters actually and three of those voters are  
20 voting for the Democratic candidate and two are voting for the  
21 Republican candidate and it's, say, 37 percent of them are  
22 Black. But you are running into a small end situation in that  
23 particular context.

24 So all this does is show basically trend lines.  
25 Furthermore, it doesn't show the composition of the different

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1 precincts, like kind of the education levels, et cetera, of  
2 the people who live there.

3 So really to do a BVAP type of analysis really what you  
4 need to do is either something like what I did or actually go  
5 and draw districts and see what districts kind of what the  
6 threshold where those districts are actually going to perform  
7 instead of actually just looking at only just a few precincts.

8 Q. All right. Thank you. Let's turn to your analysis of  
9 the CVAP margin of error issue. So we heard testimony from  
10 Mr. Esselstyn about Black CVAP. Can you tell us what a Black  
11 CVAP percentage point estimate is?

12 A. Yes. Because as we've discussed already -- and I'll just  
13 use ACS for American Community Survey or as Mr. Esselstyn  
14 discussed, and I was in the room when he was discussing that,  
15 that's a sample survey. And so because it's a sample survey,  
16 for example, if we wanted to pull out percent Black as our  
17 best estimate in that survey, we still know it's an estimate  
18 because we're dealing with survey data, we are not dealing  
19 with the full census data. And so because of that, we  
20 basically have margins of error potentially and things like  
21 that and that's why we use the term "point estimate." It's  
22 just what statisticians and political scientists and others  
23 use to discuss sort of a quantity of interest, as it were,  
24 from a survey sample.

25 Q. Okay. So the Black CVAP point estimate in particular,

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1 what does that represent in a particular region?

2 A. Well, that's going to represent the data's best estimate  
3 as to the share of Black Citizen Voting Age Population in that  
4 area given the data.

5 Q. Okay. Is there any data available to calculate Black  
6 CVAP percentages for a particular region other than data from  
7 the American Community Survey?

8 A. Not that I know of.

9 Q. And the American Community Survey is a product of the  
10 Census Bureau, correct?

11 A. Correct.

12 Q. Okay. Were you asked to calculate margins of error  
13 associated with the Black CVAP point estimates for  
14 Mr. Esselstyn's Demonstration Districts, or at least two of  
15 those Demonstration Districts?

16 A. Yes. For B and D.

17 Q. Let's go to the next slide.

18 So sort of at a high level, can you tell us how you went  
19 about calculating the margin of error for the Demonstration  
20 Districts?

21 A. Well, the Census Bureau directly reports, you know, the  
22 estimate, the point estimate for both total Citizen Voting Age  
23 Population and Black Citizen Voting Age Population; and as has  
24 already been discussed today, Black is really three, three  
25 different Black groups: Black alone, Black and/or

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1 Native-American or Black plus Native-American, and Black plus  
2 White. And so first we need to combine and aggregate those  
3 margins of error together using the formula that the census  
4 gives you and then you basically need to combine the different  
5 geographic components and aggregate that comprise a  
6 demonstrative plan and you need to combine those different  
7 geographic units together.

8 And what I did here -- I did it a few different ways and  
9 did some verification and validation. And so what I ended up  
10 doing in terms of providing my best estimate of the margin of  
11 error using -- given that we do not have the underlying  
12 American Community Survey microdata, the actual surveys, we  
13 don't have that information, that would provide us with the  
14 best margin of error estimate, but since we don't have that we  
15 have to rely on these aggregation techniques that the Census  
16 Bureau provides us, and so I combined all of the whole  
17 counties together as geographic units into the estimate as  
18 well as the counties that are split, I took the block groups  
19 from those that are wholly or partially in the district and  
20 then I combined that information with the full counties that  
21 are fully in the district.

22 Q. Okay. Can we pull up Plaintiffs' Exhibit No. 209. Is  
23 this Chapter 8 of the Census Bureau's American Community  
24 Survey handbook?

25 A. Yes, it is.



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1 Q. Did you rely on this document to calculate margins of  
2 error?

3 A. Yes, I did.

4 Q. Actually, let's go back to the slides and go back to the  
5 next slide for a minute.

6 Okay. Did you review Dr. Trende's margin of error  
7 calculations?

8 A. Yes, I did.

9 Q. Were any of his margin of error calculations correct?

10 A. They were not.

11 Q. And we'll talk about them in more detail, but sort of  
12 briefly, what were the errors that you found in Dr. Trende's  
13 margin of error calculations?

14 A. There were three technical errors in the code as well as  
15 one methodological choice that ultimately inflates the margin  
16 of error quite a lot.

17 So the three technical errors are basically when we're  
18 looking at the proportions formula to calculate the margin of  
19 error on the proportion, which in this case the proportion is  
20 Black Citizen Voting Age Population divided by total Citizen  
21 Voting Age Population, so we can say plus or minus X  
22 percentage points or what have you, he inverted say the  
23 denominator and numerator in that proportions formula by  
24 numerator here. I'm saying he switched out percent -- or the  
25 Black estimate for margin of error in certain places with the

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1 total Citizen Voting Age Population and switched those around,  
2 as well as including a few block groups into the Demonstration  
3 Districts that shouldn't have been.

4 And then when it came to aggregating the Black population  
5 together, remember, there's three different Black basically  
6 columns that we're aggregating together, he only squared one  
7 of them and not all three of them.

8 Q. And why don't we go back to that PX209 document. And you  
9 see there's a -- on the first page of the document which is  
10 marked as 59, there's a formula there with a one next to it.  
11 Do you see that formula?

12 A. I do.

13 Q. Okay. And sort of very briefly, what is this formula  
14 used for in calculating margins of error for ACS citizenship  
15 data?

16 A. This is how we can combine the margin of error of  
17 different geographic units, so putting block groups together,  
18 putting block groups with counties or putting counties  
19 together because we have margin of error estimates for those  
20 given to us by the census data, as well as basically  
21 aggregating the margin of error across subgroups. So in this  
22 case, different Black populations, Black alone, plus any --  
23 plus Black plus White and Black plus Native-American.

24 Q. And what did Dr. Trende get wrong in this formula?

25 A. In this formula it was the aggregation of the Black

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1 population.

2 Q. Did he fail to square the variables that are supposed to  
3 be squared?

4 A. That's right, yeah, in two out of three of them.

5 Q. All right. And let's go to page 64 of the document.

6 Tell us what that -- there's a little formula in the  
7 middle there that has a six next to it on the right. It  
8 starts if we define the proportion as  $\hat{P}$  over  $\hat{K}$  over  $\hat{Y}$   
9 hat.

10 A. Yes.

11 Q. What's that formula very briefly?

12 A. So that's the very final step where we have now. We've  
13 done our aggregation for the actual numbers of our Black  
14 estimates and then gotten the margin of error for those  
15 estimates and now calculating the proportion. So Dr. Trende  
16 switched some of these variables around in the improper order  
17 when he was making that final estimate.

18 Q. Did he invert the numerator and the denominator?

19 A. Yes, that's one, for example.

20 MS. THEODORE: Okay. Let's go -- we can go back to  
21 the slide, the same one we were on, the previous one. Thanks.

22 BY MS. THEODORE:

23 Q. And what was the consequence of these three technical  
24 errors, the errors in the formulas that you've described and  
25 the errors of including the wrong block groups?

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1 A. Well, I should say that each one of those errors doesn't  
2 necessarily, say, benefit the plaintiff, for example.  
3 Sometimes the errors make it look like the margin of error  
4 slightly goes up in that particular way. But the net effect  
5 overall has the effect of inflating the margin of error at  
6 least based on my calculations by half a percentage point or  
7 so.

8 Q. Okay. Beyond Dr. Trende's errors with respect to the  
9 margin of error or formula, did you also identify a  
10 methodological error that he made?

11 A. Well, the -- yeah. We're going to probably have to agree  
12 to disagree on this. I think this is an error, but I'm sure  
13 he might have a different opinion.

14 But the methodological choice is that Dr. Trende chose to  
15 use block groups across the board for aggregating the margin  
16 of error as opposed to combining full counties and -- with  
17 block groups that are only coming from counties that are split  
18 in the -- in the district.

19 Q. And what's the effect of that methodological choice?

20 A. The effect of it is it vastly increases the -- inflates  
21 the margin of error overall.

22 Q. And was there a way to empirically confirm that the  
23 Trende choice of combining all the block group margin of  
24 errors together resulted in inflated margins of error?

25 A. Yes, that's right. So I'm not just saying it vastly, you

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1 know, increased it, so believe me because I'm an expert or  
2 what have you. I wanted to at least provide some empirical  
3 evidence that that was almost surely the case.

4 Q. Okay. Let's go to the next slide.

5 So this is rebuttal Table 2 from your report. Can you  
6 walk us through what this is showing?

7 A. Okay. So this is basically my method for validating that  
8 simply using the block group approach is going to  
9 overinflate -- or is going to inflate the margin of error  
10 relative to what the margin of error would be had we had the  
11 microdata, the actual surveys of the exact demonstration  
12 district. So these are roughly 10 counties in this area here.  
13 And so what you can do is you can download from the ACS or the  
14 U.S. Census or at least you could when I did this report. I  
15 sort of say that because recently I think some of the census  
16 stuff has gone down, but you can download this data, and from  
17 that data Bertie County for the 2022 ACS will show you that  
18 there's 14,705 Citizen Voting Age Population people and that  
19 point estimate itself has a CVAP margin of error of 45.

20 And then we can also download the same data for Black  
21 Voting Age Population, Citizen Voting Age Population and  
22 because, again, we're combining the three different Black  
23 populations aggregating them together, we do have to make one  
24 calculation. But once you make that one calculation, you can  
25 then estimate what the margin of error is for percent Black

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1 Citizen Voting Age Population. That's basically directly from  
2 the census data as a whole from that county or the ACS data as  
3 a whole from the county as a whole.

4 Q. And so that PMO\_ -- MOE\_Census on the far right of this  
5 rebuttal table, what is that representing for Bertie County?

6 A. Right. So that's basically representing what the census  
7 produced county data margin of error is for percent Black is  
8 .72 percent.

9 Q. And so that comes essentially directly from the Census  
10 Bureau; is that fair to say?

11 A. That's right. It's at the county level, yes.

12 Q. What's the column entitled P\_MOE\_Trende?

13 A. So this is what -- if you basically run the code that --  
14 or the analysis, conduct the analysis that Dr. Trende did  
15 using block group and then aggregating it up all to the  
16 county, that is what the margin of error would be which is  
17 something like seven times higher so what the actual margin of  
18 error is using the county level data.

19 Q. Does his method produce inflated margins of error even if  
20 you correct the various problems that we previously discussed,  
21 like you put the numerator in the right place?

22 A. Yes, it does. Across the board in all of these different  
23 counties while there is some variation even with these  
24 corrections that we discussed, the margin of error is still  
25 significantly higher than it is had we just used only the

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1 county unit.

2 Q. Okay. So on like the second row, for example, of this  
3 table is that showing for Chowan County that if you use the  
4 Trende method to produce the margin of error for Black CVAP  
5 for Chowan County you'd get 8.05 or if you correct his errors  
6 4.77 compared to the actual Census Bureau number of .39?

7 A. That's correct.

8 Q. Okay. So did Dr. Trende, in your opinion, choose a  
9 reliable method for estimating margins of error?

10 A. No. No, I don't think he did.

11 Q. All right. Did you use the margins of error from the  
12 Census Bureau for block groups at all in your calculation of  
13 margins of error for the Demonstration Districts?

14 A. Yes, I did.

15 Q. And in what context did you do that?

16 A. That's when a county is split. It wouldn't make sense to  
17 use the margins of error that are for the full county, so that  
18 would be a methodological mistake. So the next best thing if  
19 we're going to go this route would be to take the block groups  
20 that are fully contained in the district or split at the  
21 edges.

22 Q. Okay. And did Demonstration District B and D have just  
23 one county that was split?

24 A. Yes.

25 Q. Okay. And for Demonstration District D, did you estimate

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1 a margin of error of plus or minus .594 percent at the 90  
2 percent confidence interval?

3 A. .594, yes.

4 Q. Does that calculation represent the actual, sort of, at  
5 margin of error for the Black CVAP proportion in Mr.  
6 Esselstyn's Demonstration District D?

7 A. No, it doesn't.

8 Q. And why not?

9 A. So let me be clear, it's my best estimate I can make  
10 given the data. The actual margin of error would be to  
11 actually get the microdata so all the individual surveys that  
12 are actually taking place of the households that reside within  
13 the confines of the Demonstration Districts. That data, at  
14 least as I'm aware, is not publicly available, so we can't  
15 actually calculate the margin of error.

16 Number two, there are going to be some split block  
17 groups. And so in that case, we're actually going to include  
18 a potentially people in the margin of error calculation who  
19 shouldn't actually be in that district because we have to  
20 include the margin of error calculation from the full block  
21 group, because there's no known way to disaggregate margin of  
22 error from the block group to the block as there is where you  
23 can do that with, say, point estimates, for example.

24 In addition to that, we're combining, as we've already  
25 shown, the more units that you're combining and you're



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1 aggregating multiple, multiple block groups with many counties  
2 as well, the more you do that, it's going to naturally inflate  
3 the margin of error because you just have more uncertainty  
4 going into that equation.

5 Q. Just so your earlier testimony is clear, when you're  
6 talking about no known way to disaggregate, you're talking  
7 about no known way to disaggregate margins of error?

8 A. Yes, correct. So point estimate, to disaggregate that  
9 from the block group down, you're basically just doing this  
10 weighting assignment that people have been talking about  
11 already and the census does that and Redistricting Data Hub do  
12 that for you and it's only just going up or going down and so  
13 there would be some error at the block group level where you  
14 would do that; but the overall area, that error that you would  
15 get from a point estimate going up or going down and getting  
16 split down from block group down to block is only going to be  
17 occurring in those boundaries -- those block group boundaries  
18 that are split across the district. Otherwise, if you have,  
19 say, a full county or the rest of a full county when you  
20 disaggregate the total CVAP in, say, Bertie County and you  
21 break it down to all the different block groups and then break  
22 it back up all again the same way, you're going to get the  
23 exact same value every single time.

24 Q. Okay. Directionally, how does the .94 percent, 90  
25 percent -- sorry. I'll start that again.

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1 Directionally, how does the .594 margin of error that you  
2 estimated at the 90 percent confidence interval compare to the  
3 true margin of error for the Black CVAP proportion for  
4 Demonstration District D?

5 A. It's almost certainly going to inflate it.

6 Q. So put another way, the true margin of error is almost  
7 certainly lower than what you've calculated?

8 A. Correct.

9 Q. All right. In your experience, do courts typically rely  
10 on Black CVAP point estimates in the context of the Gingles I  
11 inquiry?

12 A. I think in every single case I've worked on at least that  
13 I can recall, you know, where I was aware I was involved in  
14 that part of it, people were using the Citizen Voting Age  
15 Population for the minority population that we're working  
16 with, as it were.

17 Q. And they were specifically using the point estimates; is  
18 that accurate?

19 A. Correct.

20 Q. Is it common in your experience to calculate margins of  
21 error associated with Black CVAP point estimates in the  
22 Gingles I context?

23 A. I haven't seen it, yeah. Not in any of the cases I've  
24 worked on, I haven't seen that.

25 Q. Do you think it's reliable to rely on the Census Bureau

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1 point estimate for Gingles I even if it's impossible to  
2 calculate a precise margin of error?

3 A. I think that's the best available data that we have.

4 Q. Do you think that's reliable for courts?

5 A. Yes. Courts have historically relied on those estimates.

6 Q. All right.

7 MS. THEODORE: Thank you. We'd like to move in --  
8 I'm sorry.

9 Your Honor, at this point, this will be the last  
10 time we do this, I'd like to make our offer of proof under  
11 Federal Rule of Evidence 103.

12 THE COURT: You may.

13 MS. THEODORE: All right. We proffer the portions  
14 of Dr. Collingwood's rebuttal report which I believe is PX128  
15 that relate to Demonstration District E.

16 THE COURT: It'll be received.

17 MS. THEODORE: And I'd like to just ask  
18 Dr. Collingwood a single question about that.

19 BY MS. THEODORE:

20 Q. Which is: Dr. Collingwood, if you were permitted, would  
21 you testify to your conclusions about Demonstration District  
22 E?

23 A. I would.

24 MS. THEODORE: And with that, we'll move Plaintiffs'  
25 Exhibits 36, 37, 128, and 209.

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1 THE COURT: They'll be received.

2 (Plaintiffs' Exhibits Nos. 36, 37, 128, and 209 were  
3 admitted into evidence.)

4 MS. THEODORE: Thank you.

5 THE COURT: Cross-examination.

6 MS. MCKNIGHT: Thank you, Your Honor.

## CROSS-EXAMINATION

7  
8 BY MS. MCKNIGHT:

9 Q. Good afternoon, Dr. Collingwood. Kate McKnight on behalf  
10 of defendants. It's nice to see you again.

11 A. Good afternoon.

12 Q. I'd like to start with some questions about your CV.

13 In your CV it lists some jurisdictions that have retained  
14 you to assist with their redistricting and to conduct a  
15 racially polarized voting analysis in relation to that  
16 redistricting; isn't that right?

17 A. I believe that's right.

18 Q. And all of those jurisdictions that hired you to help  
19 with their redistricting, they have been in California and New  
20 Mexico; is that right?

21 A. If you're talking about government jurisdictions, which I  
22 think you are, I think that's right, yes.

23 Q. Would you agree with me that a significant amount of the  
24 work you've done is based out of California?

25 A. Yeah. I mean, I've definitely done a lot of work in

1 California. It's a big state.

2 Q. And prior to this case, have you ever submitted an  
3 analysis of racially polarized voting to a court in North  
4 Carolina?

5 A. No.

6 Q. And prior to this case, have you ever served as an expert  
7 witness in a case in North Carolina?

8 A. No.

9 Q. And I heard you testify on direct about a paper that you  
10 had prepared that you included some data from North Carolina.

11 Other than that paper, you have not analyzed racially  
12 polarized voting in North Carolina in an academic setting; is  
13 that right?

14 A. I think that's right, yeah.

15 Q. Okay. And you do not consider yourself to be an expert  
16 in North Carolina politics, correct?

17 A. I think the way that I framed it in our previous  
18 discussion was if someone wants -- if a reporter wants to find  
19 out information about what's happening in North Carolina  
20 politics, they would not call me.

21 Q. Let's move into the work that you did for this case.

22 In your initial report, I understand you conducted an  
23 election analysis and then a BVAP analysis; is that a fair  
24 description of the two parts of your report?

25 A. Well, both are election analyses. I would probably

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1 reframe it and say I conducted a Gingles II III analysis using  
2 election data and then a BVAP analysis that also uses election  
3 data.

4 Q. Would it be fair for me to call, just so we're clear  
5 during this testimony, the Gingles II III your racially  
6 polarized voting analysis and then your BVAP analysis your  
7 BVAP analysis?

8 A. Yes. We're clear on that, yes.

9 Q. Okay. So for both your racially polarized voting  
10 analysis and your BVAP analysis, you studied 12 counties in  
11 the state, right?

12 A. That's right.

13 Q. Let's bring up Plaintiffs' -- let's bring up your report  
14 PX36 at page 11.

15 Dr. Collingwood, here I'm just looking for the list of  
16 counties that you analyzed. The list of counties, the 12  
17 counties that you analyzed for your racially polarized voting  
18 and BVAP analysis, are they listed there in the second  
19 paragraph under Demonstration District areas?

20 A. Yes.

21 Q. And those would be -- and I beg the Court's pardon for  
22 any mispronunciation. Those would be Bertie, Chowan, Gates,  
23 Halifax, Hertford, Martin, Northampton, Pasquotank, Tyrrell,  
24 Vance, Warren, and Washington Counties; is that accurate?

25 A. Correct. Okay. Well, I don't know if that's the correct

1 pronunciation.

2 THE COURT: It's not, but people from North Carolina  
3 know how to pronounce it and lawyers from out of state don't,  
4 and it's been happening all trial, but we're going to keep  
5 things moving.

6 BY MS. McKNIGHT:

7 Q. And you did not conduct your analysis on any counties  
8 other than the ones we just identified, right?

9 A. With respect to the demonstration area, that's correct.

10 Q. In this case the plaintiffs have referred to a Black-Belt  
11 region, does that sound familiar to you?

12 A. Yes.

13 Q. And let's pull up PX69 at page 5. Okay.

14 So here I am reading at paragraph 18: Plaintiffs have  
15 referred to a Black-Belt including eight counties with a total  
16 population that is majority Black. These eight counties are  
17 in order of decreasing percentage of Black pop, and then the  
18 counties are listed there. Do you see them?

19 A. Yes, I do.

20 Q. Okay. And is it your understanding that of North  
21 Carolina's 100 counties, these are the eight, the only eight  
22 that have a total population that is majority Black?

23 A. I couldn't -- I don't know if that's actually true. If  
24 you're representing that to be as true, I accept that, but I  
25 don't know if that's actually true.

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1 Q. Okay. Let's pull up your demonstrative from your direct  
2 examination at page 18.

3 MS. McKNIGHT: Actually, pardon me, Mr. Williamson.  
4 If you can keep this up one more moment.

5 BY MS. McKNIGHT:

6 Q. Dr. Collingwood, I see there a map of the counties that  
7 are identified as majority-Black counties; do you see that  
8 map?

9 A. Yes, I do.

10 Q. And there I think we do need to read the counties, are  
11 you seeing the counties Bertie, Hertford, Edgecombe,  
12 Northampton, Halifax, Vance, Warren, and Washington?

13 A. That sounds right to me.

14 Q. Now, when you -- let's pull up Plaintiffs' demonstrative  
15 from your direct examination at page 18.

16 So here we understand under your BVAP analysis your  
17 purpose was to estimate the BVAP threshold needed for a  
18 district in the Black-Belt region. Do you see that?

19 A. Yes.

20 Q. Okay. And so did you include all of the counties in the  
21 Black-Belt region that Plaintiffs have identified in your  
22 12-county analysis?

23 A. I mean, it's the majority of the counties, I think.  
24 There might be one or two that are not in there.

25 Q. And we just looked at a map. Would you agree that all



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1 eight of these counties are in the region where the  
2 Demonstration Districts were drawn?

3 A. Nah. I think there's one, Edgecombe, that's not in the  
4 demonstration area that I've been working with.

5 Q. Okay. So you believe that Edgecombe is outside that  
6 region or is it contiguous with the other seven districts in  
7 the Black Belt that Plaintiffs have identified?

8 A. You mean counties?

9 Q. Counties.

10 A. No. It's certainly contiguous, yeah.

11 Q. So you included all but one of these eight counties in  
12 your analysis; you excluded Edgecombe County; is that right?

13 A. That's correct.

14 Q. Why did you exclude Edgecombe County?

15 A. Well, Edgecombe is already in a Black-performing district  
16 as you can see in one of my reports, so it doesn't really make  
17 sense to try to draw another district where there's already a  
18 county that's in a Black-performing district, that's number  
19 one.

20 And then number two is, you know, my decision rule to  
21 select these counties truly was let's take any county that is  
22 in at least one of the demonstration maps from Mr. Esselstyn,  
23 so put those two together and that's why Edgecombe is not in  
24 there.

25 Q. And so not all of these counties are in all of the

1 Demonstration Districts, right?

2 A. That's correct, yes.

3 Q. And you did not study all of the counties in SD1 and SD2;  
4 is that correct?

5 A. For purposes of the BVAP analysis or --

6 Q. For your -- when you analyzed the Demonstration District  
7 area.

8 A. That's correct, yes.

9 Q. Okay. I'd like to start asking you questions about that  
10 first section of your report, the racially polarized voting  
11 analysis.

12 In this analysis in your initial report, you studied  
13 racial patterns in voting; is that fair to say?

14 A. That's fair to say.

15 Q. In this initial report, you did not study political  
16 patterns in voting; is that fair to say?

17 A. The input was race in terms of, you know, the way that  
18 political scientists would think of this. The independent  
19 variable is race and the dependent variable is political  
20 votes, vote choice, but -- so I guess yes, I did study  
21 political patterns.

22 Q. So, for example, you did not study how often Democrats  
23 voted for Republicans or vice versa, right?

24 A. That's correct, in terms of voters, yes.

25 Q. Okay. So I understand from your report that you find

1 that racially polarized voting occurs when a majority, for  
2 example, 50 percent plus one in a two-candidate scenario of  
3 White voters cast ballots for the same set of candidates and  
4 the majority of minority voters cast ballots for a different  
5 set of candidates, correct?

6 A. Yes, that's correct.

7 Q. So if 49 percent of White voters vote for the Black  
8 candidate of choice, you would find that that is racially  
9 polarized voting?

10 A. Well, it would have to be also how the Black population  
11 is voting. So as a technical definition, if they were voting  
12 more than 50 percent for the other candidate, then, yes, as a  
13 technical matter one would say that there is racially  
14 polarized voting.

15 Q. Let's look at some of the electoral performance results  
16 in your report. Let's start with PX36 at page 19.

17 MS. McKNIGHT: And Mr. Williamson, could we do pages  
18 19 and 20 next to each other.

19 BY MS. McKNIGHT:

20 Q. So Dr. Collingwood, here on pages 19 to 20, you report  
21 results for the Demonstration District for 2022; do you see  
22 that?

23 A. Yes.

24 Q. And you've broken it up by the different Demonstration  
25 Districts and how they performed in these different contests;

1 is that right?

2 A. Right. Those are the columns.

3 Q. Okay. And am I reading this chart correctly that the  
4 Black-preferred candidate wins every contest in every  
5 Demonstration District with an average margin of 10 percentage  
6 points?

7 A. No. That's -- no, that's not correct.

8 Q. Okay. So let's look at page 19.

9 When you say that in the seven contests analyzed, the  
10 Black-preferred candidate wins each time in all four  
11 Demonstration Districts by an average margin of 10 percentage  
12 points. How is that different than the question I just asked?

13 MS. THEODORE: Objection, Your Honor. She misread  
14 the statement in the report.

15 THE COURT: Can you answer the question?

16 THE WITNESS: I need to -- sorry. Could you point  
17 me to the place in the report where I said that?

18 MS. McKNIGHT: Page 19, the last paragraph. I had  
19 just read straight from that second -- the last paragraph on  
20 page 19.

21 THE WITNESS: All right. So maybe it's my poor  
22 writing and my misuse of commas. But what I'm trying to say  
23 is that in Demonstration District A, the average margin is 10  
24 percentage points, and then six percentage points in  
25 Demonstration District B, which lines up more or less with the

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1 5.9 that you can see in that second column, the mean diff, and  
2 then seven points in Demonstration District C, and then a bit  
3 more than seven percentage points in Demonstration District D.

4 BY MS. McKNIGHT:

5 Q. Thank you, Dr. Collingwood. I appreciate you pointing  
6 that out.

7 So that in every -- in this chart you have analyzed the  
8 performance of the different Demonstration Districts and in  
9 every Demonstration District in every contest in 2022 the  
10 Black-preferred candidate wins, correct?

11 A. That is true, yes.

12 Q. And the win margin is somewhere between 6 and 10  
13 percentage points; is that right?

14 A. The average win margins, yeah.

15 Q. Thank you. Let's move on to page --

16 MS. McKNIGHT: Now we'll need to shift over to put  
17 on pages 20 and 21 together, please, Mr. Williamson.

18 BY MS. McKNIGHT:

19 Q. So Dr. Collingwood, I'm going to ask you questions about  
20 Figure 10. The text for Figure 10 is at the bottom of page 20  
21 and the chart is on page 21.

22 A. Okay.

23 Q. Okay. So in Figure 10 on page 21, I see you produce a  
24 chart, "Electoral Performance Results 2020 Demonstration  
25 District." Do you see that?

1 A. Yes, I do see that.

2 Q. Okay. And then here I see that the results show that the  
3 Black-preferred candidate wins every time in every election.  
4 Do I read that correctly?

5 A. You are reading that correctly, yes.

6 Q. Okay. And those wins, the win margin is an average win  
7 margin of 21, 19, and 18 percentage points for Demonstration  
8 District A, C, and D respectively; do you see that?

9 A. Yes.

10 Q. Okay. So let's turn to your study of the 2018 electoral  
11 performance results. Those are on pages 21 and 22.

12 A. Okay.

13 Q. And here, Figure 11 on page 22 shows electoral  
14 performance results for 2018 in the Demonstration Districts;  
15 do you see that?

16 A. Yes.

17 Q. Okay. And here, again, the Black-preferred candidate  
18 wins every contest in every Demonstration District every time  
19 with around 60 percent of the vote in each of those contests.  
20 Do you agree with that?

21 A. Yes.

22 Q. Let's move on and look at the 2016 results. So here  
23 we'll look at pages 22 and 23 next to each other.

24 So here in Figure 12, electoral performance results, 2016  
25 Demonstration District, you show the results of your analysis

1 for 2016 in the Demonstration Districts; do you see that?

2 A. Yes.

3 Q. And on page 22 you report that the Black-preferred  
4 candidate handily wins each contest in all four Demonstration  
5 Districts typically by a margin of greater than 20 percentage  
6 points; do you see that?

7 A. I do.

8 THE COURT: All right. It's time for us to take our  
9 afternoon break. We'll start tomorrow morning, again  
10 reminder, at 9:00 o'clock.

11 We'll be in recess until 9:00.

12 \* \* \*

13 (The proceedings concluded at 4:00 p.m.)  
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1 UNITED STATE DISTRICT COURT  
2 EASTERN DISTRICT OF NORTH CAROLINA  
3

4 CERTIFICATE OF OFFICIAL REPORTER  
5

6 I, Amy M. Condon, CRR, RPR, CSR, Federal Official  
7 Court Reporter, in and for the United States District Court  
8 for the Eastern District of North Carolina, do hereby certify  
9 that pursuant to Section 753, Title 28, United States Code,  
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11 stenographically reported proceedings held in the  
12 above-entitled matter and that the transcript page format is  
13 in conformance with the regulations of the Judicial Conference  
14 of the United States.  
15  
16

17 Dated this 26th day of February, 2025.  
18

19 *Amy M. Condon*

20 /s/ Amy M. Condon  
21 Amy M. Condon, CRR, CSR, RPR  
22 U.S. Official Court Reporter  
23  
24  
25